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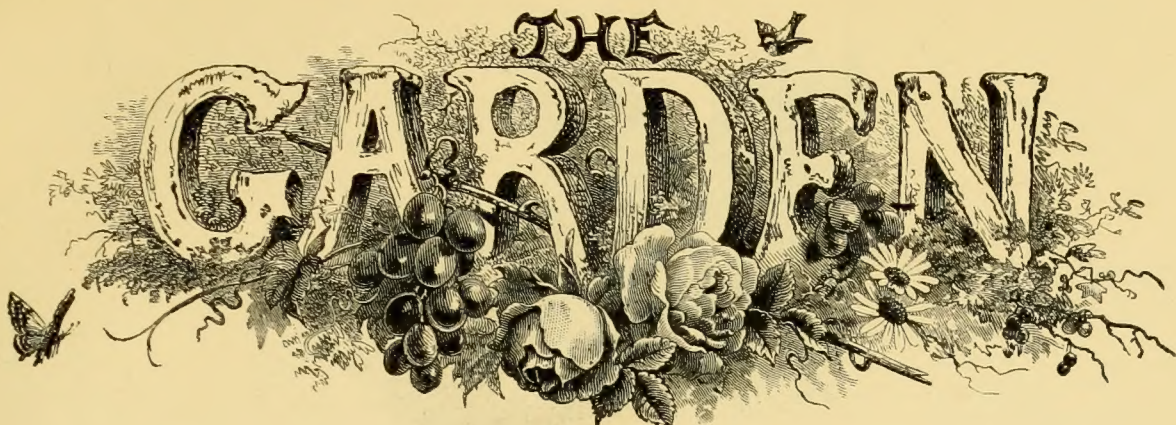
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EDUARD REGEL.



AN

ILLUSTRATED WEEKLY JOURNAL

OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, F.L.S., Author of "*Alpine Flowers*," etc.

"You see, sweet maid, we marry
A gentle scion to the wildest stock
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature change it rather.
The art itself is nature."—*Shakespeare*.

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TO

M. EDUARD REGEL,

Director of the Botanic Gardens at St. Petersburg,

THIS SIXTEENTH VOLUME OF "THE GARDEN" IS DEDICATED

IN RECOGNITION OF HIS LABOURS IN THE INTRODUCTION OF HARDY PLANTS

TO THE GARDENS OF EUROPE.

W. R.

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Per

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1879

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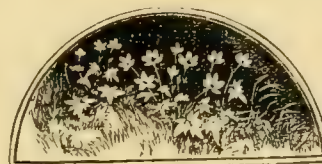
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D^R REGEL.

EDUARD REGEL was born August the 13th, 1815, at Gotha, where his father held the post of professor and military preacher. He was educated at the Gymnasium, and was afterwards apprenticed at the Grand Ducal gardens at Gotha, attending, however, at the same time special classes instituted for languages, mathematics, and drawing. He acquired a full and thorough knowledge of Latin, which was afterwards of great help to him in many ways. Three years afterwards he entered the botanical gardens at Gottingen, then under Professor Fischer's direction. There he was permitted to attend the lectures of Professors Schrader and Bartling. In 1837 he went to the botanical gardens at Bonn, then under Inspector Sinning, and remained there till 1839. Bonn was then an excellent school for gardeners, the cultivation of plants being there carried on on rational principles. There he studied the local flora, and produced, in company with Schmitz, his "*Flora Bonnensis*." In 1839 he entered the botanical garden at Berlin, under the direction of Otto, and there he soon had occasion to develop his literary talents in the "*Gartenzeitung*" of Otto and Dietrich. One of his principal contributions to that periodical was a long paper on "*Die Hauptmomente der Gärtnerei durch Physiologie begründet*." To the "*Proceedings of the Horticultural Society of Prussia*," he contributed his "*Cultivation and Description of all the Ericas then existing in German and English gardens*," a work still valuable, and of which a revised edition appeared in 1843 at Zurich.

In the Berlin Botanic Garden at that time the position of the under gardeners was more independent than in most places, every one of them having charge of a certain department, for which he was entirely responsible. Regel took to hardy herbaceous plants. In 1842 he was appointed botanical gardener at Zurich, and was instructed to re-organise the botanical garden there. In 1843 he founded the "*Schweizerische Zeitschrift für Gartenbau*," in company with Professor O. Heer, and afterwards became sole conductor of that periodical, changing it in 1852 to his still existing "*Gartenflora*." Along with Professors O. Heer and Naegeli, then Directors of the Zurich Botanic Garden, he founded, in 1852, the Swiss Horticultural Society, of which he was elected president. He also lectured at the University, and took, in 1855, the degree of doctor.

When, in 1855, the director of the Imperial Botanic Garden at St. Petersburg, C. A. Meyer, died, the leading authorities had the good sense to choose for that post a man who was at once a good botanist and a good gardener, a combination which REGEL possessed in a high degree; his "*Gartenflora*" exemplified his skill as a botanist, and the flourishing condition of the Zurich Garden gave ample proofs that he was a good gardener. During his thirteen and a half years' stay at Zurich, he formed many connections with foreign countries, and introduced and distributed many new plants; he also devoted part of his time to experiments in hybridising, especially as regards the genus *Gesnera*, the result of which he afterwards published in his work "*Plants and Plant-life in Relation to Practical Gardening*." The Zurich Garden was not endowed with large funds, but REGEL—by, in a practical way, increasing and sending out new plants, and also by frequent exchanges—very soon gained for it a prominent position amongst botanic gardens. In the same way he continues in his now much more important position to distribute liberally to European gardens the novelties which arrive in great quantities at St. Petersburg.

When first he went to St. Petersburg he observed many things that needed changing, but during the first few years he was, in spite of his nomination as scientific director, prevented from doing much, as every effort to do anything was dependent on the Administration. After a time, however, he was nominated Kollegienrath and Botanicus Primarius and, under Trantvetter's Administration, got freedom of action; and when Trantvetter retired he became Director-General of the Garden. By and by he altered to advantage the arrangement of the plant collections, had the houses rebuilt, and most of them heated by hot water. As far as was possible, he placed his plants in groups, each representing a separate flora, such as that of St. Petersburg, Siberia, Caucasus, North America, &c., and at the same time he laid out and embellished the park adjoining the botanic gardens. Innumerable plants, especially from the Central Asiatic dominions, were introduced and described by him, and most liberally distributed to all foreign botanic gardens and nurseries. He laid out the Admiralty Garden with much taste and judgment, and improved that around the statue of the Empress Catharina. He rendered also great services to Russia, in advancing, by his writings and example, the cultivation of fruits and fruit trees, and founded for this purpose a private pomological garden, and a garden for acclimatising purposes, the importance of which will be understood when it is stated that they cover about 70 hectares or about 175 acres. A difficult undertaking was the foundation of the Russian Horticultural Society in 1858, but in this he succeeded, and has been since that time its vice-president. On his recommendation, that Society ventured to hold an international exhibition in 1869, which turned out to be a brilliant success.

As to his literary works, he is the author of the "*Flora of Siberia*," "*Turkestan*," and the "*Russian Dendrology*." Numerous contributions to periodicals and in the form of pamphlets also attest his zeal and energy in this direction. He is a Councillor of State, with the title of Excellency, a rank which he has won entirely by his talents, perseverance, and energy. He is just and amiable in all his dealings with others, and steadfast in his friendships.



THE GARDEN.

VOL. XVI.

GLASS V. CANVAS FOR TULIP BEDS.

WITH several old florist friends, as with myself, the thought of blooming Tulips under glass instead of canvas is not new. Years of watchful culture of a favourite flower so exclusively under its owner's charge as a florist's flower is enable us, among other advantages, to foreknow what more can be done for its welfare and improvement than we have accomplished yet. Thus a new step in cultivation, where the nature of the plant is our guide, need not be dreaded as a false one. The two great enemies of the Tulip are wet and wind, and though our old-fashioned canvas apparatus is a protection against these, yet we are ripe for believing that there is a more effective and more beneficial shield in glass. Little as we have ever feared winter frosts for Tulips, I did not expect that we should so serenely smile at its iciest grip till after the experience of last winter. The Tulips here were planted early in November in their two parallel beds, each 48 ft. by 4 ft., and were perfectly without shelter till late in March. Before the poor bulbs could root deeper than 1 in. they were frozen solid, and by degrees the soil beneath them, till the beds, which are nearly 1 ft. above the ground level, were hard as rock. In this imprisonment the bulbs remained for many weeks with fibres unable to move during those very months in which they would naturally have been in most active growth. It was long after the thaw set in before they were released, and yet the foliage, though several weeks behind time, unfolded without one injured leaf, and in due time the buds rose up as if nothing unusual had occurred, although here and there the petal tips of a few sensitive varieties such as Kate Connor, Friar Tuck, and old La Van Dikken afterwards showed signs of frost-bite. It was marvellous to see how no tissue had been disorganised, nor cell of colouring matter ruptured in the most delicate flash of pencilled feather-

ing; hence the hardiness of the Tulip is set beyond dispute, at least in situations not too wet. In reply to a request to state what I think of glass in the place of canvas for Tulips, my answer is that I would not for any consideration let them dwell in tents again.

Shelter from fierce sunshine, beating rain, and tearing winds is imperative for the tall florist Tulip, with its large broad petalled cup and exquisitely flamed and feathered petals, but the moment the canvas is set over them a gloom falls on them, and that which is a protection to the flowers becomes an injury to the rest of the plant. The diminished light begins to draw the stalks and has an effect for evil upon the foliage, so intimately connected not only with the development of the bloom, but also with the formation and calibre of the next year's bulb which the plant while above ground is busily elaborating from the tiny germ first begotten within the old bulb while dormant in the preceding summer. Canvas, indeed, is but a cumbrous luxury, and to be effective and harmless is only for those who, for their Tulips' sake, could watch the sunshine, and the shadows, and the passing thunder-storm, and withdraw the shelter when there was not danger. But it is not given to the main of us to be such leisure folk, and to be at hand in the garden to trim our canvas to the changeful weather.

The advantages of a glass protection are simply commensurate with every need which our perplexing British climate creates. Glass is the magic extractor of all that is welcome in this Bitter-sweet. And need I say how great temptation there may be in this adaptable protection to seek change of floral scene in other florists' flowers; and after the Tulips have had their bright day, and we have seen again the pictured petals with their inimitable work in white and scarlet, gold and black, to follow up the glories of the Tulip bloom with

the beautiful change, say of the Carnation, Picotee, and Chrysanthemum. For my own part I have not yet reaped all the benefits of the alteration I have adopted. The bloom has been uninjured and in time for the Royal National Show, which in this cold locality I have for years together been unable to catch, and only hoped for in exceptionally kindly springs.

The foliage has been good, but I have yet to see the bulbs that are the harvest of it all, but contemplate the gathering in with a feeling that it is well with them. Of course Tulips shut down under glass would not thrive. The plant is hardy and must feel the open air; but it will occur to Tulip growers that their favourite is all the better suited for this protection in being naturally free from insect pests that affect greenhouse plants. I never saw green fly upon a Tulip leaf, though, oddly enough, a group of vigorous aphids may be seen upon the young sprouts in October, when the stored bulbs have been kept in quarters too confined. Red spider cannot affect it, because all leaf growth is over before the heats of summer. No grub or caterpillar seems to care for Tulip leaves or buds. Birds that will ruin our Carnation and Polyanthus buds touch not these. The blooms are no congenial haunts for earwigs, though they are prisons for many a bee. Slugs of divers interesting varieties will glide over the glaucous foliage of the Tulip; and, as smitten with a too rare resolve to be honest for once, will pass on without a stolen taste. A last thought in favour of protecting the bloom with glass is that it may be made water-tight, and so save the flowers from being pitted with the ruinous marks that rain through a rent in canvas, or even spray from a thunder shower beating through may create—mischances which require, under old systems, an extensive arrangement of hand-glasses in readiness for valuable blooms. Of course, too, it is only the south side glass that requires a sunshade; the north continues always open to the clear day, and keeps up a very valuable supply of light. F. D. HORNER.

Kirkby Malzeard, Ripon.

THE FLOWER GARDEN.

ROCK & CARPET GARDENING.

"GLORIOUSLY beautiful!" No other expression is suitable when we look down from a broad gravelled terrace on a well-kept and carefully arranged garden laid out in carpet bedding. And yet, why that sigh? Is it not enough to have the eye delighted with the bright tints and gay colouring blended skilfully together so that the whole is not too gaudy, but softened with the exquisite neutral tone which is allowed to predominate sufficiently to prevent anything like vulgarity in a too striking contrast? Is it not enough to look and wonder over the skill which has adapted that intricate mosaic of unruly plants so that it presents to the eye an even surface of varied pattern and scrollery? No, it is very beautiful; and we should be very sorry to see the style given up—as under the powerful influence of fashion it inevitably will be sooner or later—but, nevertheless, it does not satisfy; it is uninteresting. Yes, that is the grand fault; you look at it and admire it, and then there is nothing more. In the varied beauties of a lovely scene in some Devonshirecombe, or on some wild rocky moorland there are poetry and feeling, and the mind is stirred, and even an individual flower may have power to excite in some the same sort of emotion which Linnaeus felt as he threw himself on his knees and thanked God for the beauty of the wild Gorse, but there is no poetry in the carpet garden. The artificial work of the artistic cultivator is too manifest in the trim neatness of the carefully

wrought design. It is after all lowering the dignity of flowers and beautiful leaves to treat them so. Nevertheless let them be. We at all events recommend our readers to have in addition a garden that will interest.

But how is this to be done? First, get some stones, the very largest you can find; heap them up in as irregular a fashion as possible, with plenty of earth between them, and taking care that they are sloped well back and therefore are not in the least either like a wall or a building. Let the soil consist largely of leaf-mould, but have also a place where there is some corner in which you can put peat. Put the whole rockery right in the eye of the sun; there will still be shady nooks enough for those few things that like it. In one corner manage to plunge half a barrel (if you are anxious to do things economically, half a petroleum oil barrel, costing 2s., will do well), fill it up loosely with stones, peat, leaf-mould, and fresh upland soil, and cover the rough upper surface with Sphagnum Moss, then pour water over the whole till it is full and overflowing; this will be a bog garden of minute dimensions certainly, but nevertheless interesting.

You are now prepared for planting. To judge from the answers which one sees from time to time in the column headed "Correspondence" in the various gardening papers, the best thing usually done is to write to some paper for a list of plants suitable for a rockery, &c. Now we do not admire this plan. On the contrary, we recommend that nothing should be put into the rockery without having some special interest attached to it. This may be either in the plant itself or in some association connected with it. It may be in many ways in the plant itself. Find out its name and why it is so called in English and in Latin; the country in which it grows wild and the sort of locality it loves to haunt; the botanical construction and its consequent relation to other plants; in fact, find out all the plant lore about each plant you put into the rock garden, be it little or big. But the associations connected with it may make the plant far more interesting. "That beautiful bit of Grass of Parnassus," you may say to yourself, "came from the loveliest of Swiss valleys near the Rosenlauri Bad"; and the whole beautiful scene of snowy mountains and glaciers and rushing water and Spruce Fir will come up again before your eyes, as it does before the eyes of the writer at this moment. You will seem to hear the echoing horn coming towards you with wild strains of the *Ranz des Vaches*. "That bit of Gentian grew once at the Grimsel, and I found this little treasure of Saxifrage near the Handeck Falls." Associations of that sort may be indefinitely multiplied in connection with the rock garden. But another interest still attaches to the time of the year in which many a flower before the delicate bedding plants leave their glass shelter.

And, again, there is another interest in the delicate beauty which many of them possess. *Ramondia pyrenaica*, for instance, has a delicate tint of lovely pure grey, and is altogether one of the most beautiful plants which can be cultivated, and it stood with perfect impunity the very severe frost of last winter. Another source of interest which may commend itself to some is the difficulty of cultivating well some of the best Alpines, *Gentiana verna*, for instance, which in itself keeps up the interest in those particular plants and makes a fine specimen a source of triumph.

The rock garden may be very small, and yet deeply interesting, if there is some special association with every plant in it. We recommend that it should not be made too large at once, but grow with the plants which are procured to fill it; for a rockery without plants is neither interesting nor pretty. Those who have not tried it will find that they have within their reach, even in a small town garden, a source of unfailling

interest which will not flag, but grow and increase, as they add more and more specimens and varieties to their rock garden. In a small space not more than 6 ft. square it is quite possible to have a collection of not less than a hundred different Alpine plants and Ferns.

J. L. S.

OMPHALODES LUCILIE.

Of the numerous additions which we have had of late years to our lists of hardy flowers perhaps none have been more universally admired than the subject of the accompanying engraving. It belongs to the Borage family, which furnishes us with so many beautiful border flowers, the majority of which are at the present time in full beauty. Though its flowers lack the deep azure blue of its pretty congener, the spring-flowering *Omphalodes* (*O. verna*), there is something in their pale porcelain blue tint which changes to a pinkish hue that is quite unlike anything which we have amongst hardy flowers, and this, combined with its handsome glaucous foliage and the graceful creeping habit of its slender branches, which throughout the greater part of the spring and summer months bear a copious supply of blossoms, has elevated it to the rank of plants that cul-



Omphalodes Lucilie.

tivators like to place in the most select spots in the rock garden. Its perfect hardiness, too, much enhances its desirability, for it has withstood the past winter with impunity, though quite unprotected. It succeeds well when planted in a border or on a rockery, where its branches hang over the ledges, but the place must be thoroughly drained, for though it requires abundant waterings during the growing season, it is very impatient of stagnant moisture at the roots or about the crowns. Slugs, unhappily, are particularly fond of its foliage; therefore the plants should be guarded against their attacks, and for this purpose strips of perforated zinc about 3 in. wide, and bent so as to form a ring round the plant, will be found to be as effectual as any plan that can be adopted. It may be readily propagated by division or by seeds, which in some seasons it develops freely. It is very successfully grown in Mr. Wheeler's nursery at Warminster.

W. G.

MIXED FLOWER GARDENING.

The present melancholy condition of the flower beds in the Regent's Park forms a strong argument against pinning one's faith exclusively to the modern custom of bedding out to the neglect of the old-fashioned and more natural system of cultivating hardy annuals and perennials. Owing to the long winter through which we have passed, the usual bedding out operations could not be performed until the season had far advanced, and the consequence is that these beautifully-laid out flower beds, the plants in which generally make such a brave show about this time of year, present a pitifully

stunted and meagre appearance, and that, too, when so many gardens, situated in less favourable positions, but planted with both old and new-fashioned hardy annuals and perennials, have been for some time past glowing masses of vigorous life and brilliant colour. Bedding-out plants most undoubtedly have a special beauty of their own, but the miserable, half-starved subjects in the Regent's Park ought to teach cultivators that, in exceptional years like the present, we must not rely on them solely for a spring and summer display. A good selection of hardy annuals and perennials scattered about these beds would now have worthily replaced the sickly *Pelargoniums*, *Echeverias*, and *Pyrethrums* with which these borders are planted and have prevented them from bringing such discredit on the bedding-out system, which, after making all allowances, certainly has its merits in spite of all that has been said against it. It is both interesting and instructive to turn from the art of Regent's Park to the nature of Hampstead Heath. I have been familiar with every nook and corner of this grand wild garden from year's end to year's end for five-and-twenty years, but I have never seen such wealth of leaf and flower as it presents this summer. This may be ascribed to two causes—the lateness of the season and the wholesome check put upon the destructive habits of the sandboy and the destructive Cockney by the beneficent action of the Metropolitan Board of Works. These are no longer allowed to work their wicked will on one of the fairest spots about London by converting Grass-clad hillocks into sand-flats, or by ruthlessly burning or uprooting Furze, Broom, and Fern. Dame Nature has once more resumed her sway over this charming spot, and the whilom sterile plain on the west of the road leading to the "Spaniards" is slowly becoming covered with verdure. The golden-blossomed Broom is making a most gorgeous show, and the duller glow of the Furze is following closely in its footsteps. As a true wild garden harmony in green and gold of many tones, blended with patches of blue *Veronica* and *Polygala*, white *Galium*, and ruddy-flowered *Sorrel*, with gleams of ochreous soil showing here and there amongst the green turf and tawny-tipped *Bracken*, Hampstead Heath in the pleasant month of June affords the beauty-loving eye a display of colour which the highest art may emulate, but can never equal.

C. W. QUIN.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Wintering Gladioli Out-of-doors.—What Mr. Divers states (Vol. XV., p. 493) respecting the strength of his Gladioli that had been left out during the winter bears out what I asserted some time back concerning not only Gladioli, but similar plants, and I am convinced that if Gladioli were allowed to remain in the ground instead of being subjected to the unnatural process of drying and storing, that the majority of them would be all the better for being allowed to take care of themselves. In planting, however, in soils that are inclined to be stiff and wet, it is necessary to make proper preparation for them by affording a little drainage underneath, which may be done by making use of any refuse material at hand, such as finely-broken bricks or cinders. These should be placed low down in order that the plants may have plenty of depth in which to grow; and in filling up the holes it is always advisable to work in with the soil plenty of grit, such as the scrapings of roads or some sharp, clean sand, either of which will keep the bulbs clean and prevent them from rotting. Thus treated, most kinds will stand almost any weather, for if they are tolerably dry and comfortable, frost has but little effect on them; but, in order to render matters safe, it is easy to cover each patch when the borders are cleared in the autumn with a handful or two of Cocoa-nut fibre. This forms an efficient protection and is not unsightly at any time, nor liable to be scattered or blown away by winds in the way in which any lighter materials would be. There is one thing that should be borne in mind when planting Gladioli or other bulbs of a like character intended to be left out during the winter, and that is, to plant them deeper than is usually done, the tendency being rather to raise themselves than get lower. If those having Gladioli will try a portion of their plants in the ground where they grow, and compare them at the end of the summer with others that have been lifted, they will soon see how superior the former are to those lifted, a circumstance not to be wondered at when we consider how much the stored bulbs lose in weight from shrivelling, especially if they happen to be kept a little late in the spring.—S. D.

Seedling Petunias.—These are extremely useful both for flower garden and conservatory decoration in summer, and being so easily raised are well adapted for amateurs whose amount of glass is generally limited. The seed should be sown in heat in February, and the young plants, if pricked off into boxes, will acquire a good size by May for furnishing flower beds. A few, too, of the striped and double kinds, if potted on as they require it, will make useful specimens for the conservatory by midsummer. Petunias have been

so carefully hybridised and selected during the last few years that the produce from seed may now be relied on to yield really fine, well-marked flowers. We have some belonging to the *grandiflora* or large-flowered section now flowering, the produce of seed sown this spring, and the blossoms are exceedingly attractive, being large in size, richly marked, and fringed at the edge. A few stakes to support the side growths is all the training they require, and a rich light compost, consisting of loam, rotten manure, leaf-mould, and sand, suits them admirably. They should be carefully watered after being fresh potted, as if the soil gets sodden they are liable to rot off at the base; but when well rooted they can scarcely be over-watered, and when in bloom weak liquid manure will assist greatly in prolonging the display. Under good cultivation they are seldom much affected by insect pests, but if green fly attacks them fumigation with Tobacco smoke is the safest remedy, as the leaves, being downy, are liable to receive injury from dipping in solutions strong enough to destroy insect life.—J. GROOM, *Linton*.

Monkshoods in the Wild Garden.—Amongst tall and vigorous herbaceous plants few are more suitable for wild and semi-wild places than Monkshoods. They are hardy and robust enough to grow anywhere in shady or half-shady places. Their tall spikes, loaded with blue flowers, are very beautiful, as we can say from having seen them naturalised in shrubberies, where a few tufts were thrown out by accident amongst the soil in the autumn, and as they are rather short-lived in bloom and stiff plants, not quite so manageable as Delphiniums in the mixed border, they seem particularly well fitted for the wild garden. The annexed illustration shows the common Aconite in a Somersetshire valley in company with the Butterbur and the Hemlock. In such a place its beauty is very striking. As many of our readers know, some of the Aconites are very poisonous, so much so, indeed, that many people will not allow them a place in their gardens for this reason alone; places outside the garden seem best for them. The larger rich blue kinds and the blue and white one are very beautiful grown in deep soils, in which they attain a great height.

Eritrichium nanum.—I am glad to be able to tell you that I have two plants of *Eritrichium nanum*, which seem to me to be perfectly established on my rockwork without costing £100 (p. 492). It is true that I have not had them for a very long time, but they have both blossomed with me, and they have at least doubled in size since they were sent to me. Not two plants in the garden look more happy and completely at home than these two specimens of *Eritrichium* seem to be. I shall be much surprised and disappointed if they do not hold on well for a long time to come. The great thing is to cover their heads with a large piece of glass in the winter, while the sides are left quite open. I owe more success in keeping Alpine plants to this recommendation of your correspondent "W." than anything else. It is simply invaluable, and there is scarcely an Alpine (I have not yet tried Bog plants) which cannot be grown here by its aid.—H. EWBANK, *St. John's, Ryde*.

Pulmonaria saccharata grandiflora.—In the foliage of this large red-flowered *Pulmonaria*, as produced by the plants as soon as the bloom is over, may be found the characteristics of a hardy plant most attractive for summer bedding purposes. The growth rarely exceeds 8 in. in height. The leaves are long, somewhat lanceolate, with a rich green ground and densely marked with white blotches, thus bearing a close resemblance to the foliage of a *Diefenbachia* as respects markings. Strong plants of it will by the autumn cover a diameter of 18 in., and the foliage will keep fresh and clearly marked all through the winter. It would be specially valuable as an edging or carpet plant to a bed of Cannas, but it would be handsome and effective howsoever employed.—A. D.

Seedling Delphiniums.—One of the finest displays I ever saw is now being furnished by a bed of these 24 ft. long and 5 ft. wide. Unfortunately it is in the kitchen garden and in anything but a prominent position. The seeds were sown last spring and the young plants parted and set out about 1 ft. apart in September; in winter they were heavily mulched. The growth this season has been truly marvellous; some are now 6 ft. high. They vary in colour, size, and compactness of bloom, but as yet not a flower-stalk has developed itself which I can make up my mind to discard, while many spikes of bloom are truly magnificent and equal to any named varieties I ever saw. The seed was all home saved and gathered from the best sorts only. After this experience I shall never think it necessary to purchase any more named kinds.—H. M., *Bromsgrove*.

Bougainvilleas at Monaco.—At the Villa Walewski, Monaco, there is a wall about fifty yards in length, facing south, and extending by the side of the approach from the entrance lodge to the house. This wall at the time of my visit in April last was covered from end to end with the blooms of *Bougainvillea spectabilis*, B. glabra, and a light scarlet variety (the name of which I do not know); of these *spectabilis* occupied most space, and was, at least to my thinking, by

far the most beautiful, the colour when grown in the open air being darker and richer than that of those seen at home under glass. The dazzling effect of this wall was very striking, my attention being drawn to it from its appearance at a considerable distance off. *Bougainvilleas* at Cannes were almost killed by the severe winter, and scarcely showed any flowers.—J. H. W. T.

Sambucus laciniata variegata.—This beautiful variety of the Parsley-leaved Elder looks strikingly handsome on Grass, its beautifully variegated and deeply serrated leaves being very distinct. We have a bush of it with shoots quite green, others very evenly variegated, and others of a pale lemon colour, resembling that of the Golden Feather *Pyrethrum*. It is extremely useful for decorative purposes, as its lace-like foliage forms an agreeable garnishing for cut flowers or for table decoration.—J. GROOM.

ROSES.

THE CULTURE OF ROSES.*

Situation.—A place apart from other flowers should be assigned to them, if possible, sheltered from high winds, but open and not surrounded by trees, as closeness is very apt to generate mildew; where they cannot have a place to themselves, any part of the garden best fulfilling these conditions will answer.

Soil.—A most important item in their successful culture. That in which they especially delight is a rich unctuous loam, that feels greasy when pressed between the fingers. Where this is not to be had the soil must be improved; if light, by the addition of loam, or even clay, well worked in; where heavy, good drainage and the addition of coal ashes in small quantities will help it, but in such places draining is most important.

Stocks.—For standards (which are generally a mistake for non-exhibitors), the Dog Brier is the stock; dwarfs may be either (1) on their own roots, (2) on the Manetti, (3) on the seedling Brier, (4) on Brier cuttings. The first are a much longer time in making plants, and only some do well; 2, a very suitable stock for all soils, but apt to be too vigorous for weakly growers, and of late 3 has taken its place to a large extent, suits many varieties better, makes very strong roots, and does not throw up suckers; 4 is very nearly similar, and generally suitable for all soils. For Teas and Noisettes either 3 or 4 are unquestionably the best.

Planting.—November is the best month, but it may be done any time when the ground is in good order during the winter months. In planting budded plants place the point of junction beneath the soil, as the Rose will then make roots and the plant has a double chance. Mix some loam and well-rotted manure together, open a good-sized hole, and fill it with the fresh soil; plant firmly. Tea Roses should be protected by Fern loosely scattered among them. Shorten any very long shoots, and, if exposed to winds, secure the plants by short stakes.

Manuring.—Roses are strong feeders, and will take almost any amount of manure; pig manure is the best, except in hot soils, when cow manure is preferable; stable manure is generally available and good. Exhibitors generally apply a top-dressing in spring, but it does not improve the appearance of the beds; a good top-dressing may be laid on the beds in autumn, and be dug in in the spring.

Watering.—When coming into bloom, if the weather be dry, give a good drenching twice or three times a week; continue after blooming to prevent mildew. If greater size be required, liquid manure may be used. Syringe daily for green fly.

Pruning.—This may be done any time after the beginning of March, according to the season. Cut out all wood over two years old and all weakly shoots. Weak-growing kinds should be pruned hard, i.e., down to three or four eyes; stronger-growing kinds may be left longer. Cut to an eye that points outwards, so as to keep the inside of the plant open. Teas and Noisettes require less cutting back; the tips should be shortened and the weak shoots cut out, and they should not be pruned until May. Use a good pruning knife in preference to a sécateur, as it cuts cleaner, and does not bruise the wood.

White-flowered Anemone palmata.—This pretty addition to early summer-flowering kinds of Anemones has all the characteristics of the original species, from which it differs only in the pure white colour of its flowers. We hope soon to see it in general cultivation, though at present it appears somewhat scarce. It is now in flower in the herbaceous ground at Kew.

* "Brief Hints on the Culture of Roses," issued by the National Rose Society.

THE PLOUGH IN THE GARDEN.

PROBABLY the day is not far distant when all large vegetable gardens in this country will be cultivated by the plough to a great extent, and spade labour, except for a few special subjects, will become a thing of the past. The use of the plough within the garden walls has been suggested pretty often within late years, but the suggestion has not been as yet received with much favour. One chief reason of this is that our kitchen gardens are at present so planned and arranged that the plough could not be used to good advantage. The system of dividing the ground enclosed into small plots or quarters devoted to both vegetables and fruit trees renders the use of the plough all but impracticable. Before it can be introduced successfully we must remodel our vegetable gardens, and there is no valid reason why that should not be done, when new ones are formed or old ones have to be altered. Plough culture would also entail larger gardens, for the close cropping system could not so well be followed; but that would matter but little, for the extra ground required would be cheaper than the extra labour incurred in spade culture. First of all, it would be necessary to get rid of the idea that the kitchen garden must be an ornamental as well as a vegetable ground. The proprietor must come to regard it in the same light as one of his Wheat or Turnip fields, and nothing more; and now with our spring, summer, and wild gardens this is not too much to expect. Gardeners would undoubtedly welcome the change, for the plough would save them much labour and anxiety.

The present system of cropping kitchen gardens is the cause of much waste of time and labour. For example, all main crops like Broccoli, Cauliflowers, Peas, Brussels Sprouts, Cabbages, &c., have mostly to be sown and afterwards transplanted, because perhaps at the time the quarters are not vacant to receive them, or that the time cannot be afforded to dig and sow the ground where the plants are to remain; but it would be better for all such subjects if they could be thus treated. Every gardener knows that all the Brassica tribe produce the best crops when the plants are sown where they are to grow, and that transplanting in most instances is attended with a check to growth if not worse evils, and buttoning in Cauliflower, which is the bugbear of the Cauliflower grower, would be unheard of almost if transplanting could be abolished. Then the practice of sowing in beds and dividing every crop off from its neighbours entails an infinite amount of trouble, and is productive of weeds and filth; it is all ground that has to be kept clear to no particular purpose, and the same may be said of small plots or quarters. The more plots the greater the extent of useless margins, walks, alleys, and walk edgings, that have to be looked after. Reckoned up, it is simply astounding the extent of walks in some private kitchen gardens—gardens which the proprietors hardly look round once a year or more. The cost of producing kitchen vegetables and other crops for the house really does not represent more than a portion, and that the least, probably, of the cost of maintenance, the greater part of the labour expense being incurred in keeping and dressing walks and borders and vacant ground. Hence, too, it is that private gardens have got the name of being unremunerative; but as a matter of fact, vegetables, if measured by their actual cost of production, and not saddled with the extra expenses incurred for other purposes, are produced cheaper, as a rule, in private gardens than anywhere else. The fault lies in the plan of our kitchen gardens, which entail a certain degree of good order and dressiness, irrespective of the necessities of vegetable culture. A garden laid out with trim walks and miles of Box and other edgings and fruit trees and flower borders looks simply disgraceful if not kept tolerably well up to the mark at all points; but do away with the necessity for such keeping and no one expects it, and nothing appears to be wrong. Those who wish their kitchen gardens kept up in flower garden style have a perfect right to have their wishes gratified, of course, but, as a matter of fact, nine-tenths of our large private kitchen gardens are a shame to be seen. Ill-kept walks, worse-kept edgings, and untidy borders are a satire on the



Monkshoods in the Wild Garden.

style. Not long ago a certain horticultural society in the north took up the subject of kitchen gardens and offered a prize for the best plan, but nothing in the least original or better came of it, and the prizes were awarded to designs that were clearly faithful copies of the old style, and these same plans were afterwards published by a contemporary as commendable. If the plough is to be employed in the garden, therefore this state of things will have to be altered. What a gentleman will need for a garden in which to grow the whole of the main crops will be a piece of good ground from 3 acres to 6 acres in extent, according to the supply expected, and sheltered on the north-east and west sides by a belt of trees, and fenced to exclude game, unless he wishes to have it walled round. This piece should consist of one quarter intact, and at the most it need only have a boundary road running round the outer skirts of it. One portion of the ground might be set apart for the culture of small bush fruit (all fruit trees like Apples and Pears being confined to an orchard), and the bushes should be planted in straight lines right across the quarter. The remainder of the ground would, of course, be reserved for vegetables, and here all the Brassica tribe (including Turnips), Spinach, Peas, Beans, Carrots, Beet, Parsnips, Onions, and Potatoes, &c., could be sown or planted by the plough or seed drill in sections without a break or alley anywhere. The small French

farmers, some of whom have only a little piece of ground not so large as some English kitchen gardens, follow this plan successfully, as may be seen by any one travelling on the railways in France. Of course early crops could be grown on warm borders as at present, but these form but a fractional portion of the crops of a kitchen garden. Such a garden as we have described would, we submit, look much better and be much more easily managed than one laid out on the usual complicated plan. We shall probably be met with the assertion that ground worked by the plough would not be deep enough for many kitchen garden crops; but the objection will barely hold good. No doubt a deep soil is beneficial, and there need be no difficulty about trenching the ground deeply in forming a kitchen garden, but the farmer has proved conclusively that as good root crops almost can be produced in the field as in the garden by intelligent culture, and that, too, where the soil is not very deep. One has only to point to the monstrous Mangolds, Beets, grand Potato, Turnip, Carrot, and Cabbage crops that are constantly raised as field crops in proof of this. It should be borne in mind, however, that very large vegetables are not always the best for kitchen use, nor preferred. On the contrary, moderate-sized samples are always preferred by cooks; and,

so far as this applies, the produce of the farm just suits his wants as well as that of the garden. Another point connected with kitchen gardens that it is needful to mention is the situation of the forcing and plant houses, which are generally placed in the kitchen garden, no matter how far these may be from the mansion, sometimes as much as a mile, entailing a long journey on the part of the proprietor or his friends when they wish to see the hothouses. Some portion of the forcing houses are best placed in or near the vegetable garden, but plant houses, Vineries, and Peach houses, &c., might advantageously occupy a more ornamental position in or near the pleasure grounds, and not too far from the house. They need not necessarily be in the vegetable field where the plough is used, at least, and their absence will leave that department free to be treated for its own special purpose. We believe the plough is employed in several market gardens about London, and it only needs an example setting to show what can be done with it in private gardens. Those who from any cause find their kitchen garden too expensive to keep up in the old semi-ornamental style, and yet wish to save it from becoming a half waste piece of ground, would do well to eradicate the unkempt walks and borders and turn the plough into it. A kitchen garden should at least be as cleanly and well cultivated as a farm, which is cropped at considerably less cost, and where this cannot be done something is wrong; but it is well known that hundreds of gentlemen's gardens are in this plight. C.

NOTES OF THE WEEK.

Allium pedemontanum.—Messrs. Backhouse & Sons, of York, have sent us a remarkably fine example of this bulbous plant which is without doubt the finest of all the Alliums in cultivation. It grows about 1 ft. high, and has deep green grassy foliage produced in tufts, from which arise slender flower-stems, terminated by a drooping umbel of bell-like blossoms of a deep mauve tint, and which last a considerable time in perfection. It is a native of the limestone mountains of the south-east of France and north-west of Italy.

Cycads at Kew.—The rich collection of these handsome plants in the Palm house is now well worthy of a visit, as the majority are developing new crowns of leaves. *Dion edule*, of which there are some grand examples, is particularly fine this season, a remark which also applies to the majestic heads of the less rare *Encephalartos Altensteini*, *E. Caffer*, and its variety *semi-dentatus*, which is producing several cones. The glaucous foliage of *E. horridus* and *E. Lehmanni* contrasts finely with the deep green leaves of *Cycas revoluta* and *C. circinalis*, which are also unusually attractive. The new *E. Friderici Guilielmi* is a highly ornamental species; the long comb-like leaves, being of a slightly glaucous hue, have a fine effect. A nearly allied kind, if not identical, is *E. mexicanus*, which is also named in some collections *E. Williamsi*. The *Macrozamia* from Queensland, and the *Ceratozamia* from Mexico, too, are very elegant, and though not specially noteworthy, are at present highly interesting.

Double-flowered Potentillas.—We have received from Mr. Stevens' garden at Byfleet some examples of these showy hardy plants, which are finer than we have ever before seen them. Some of them measure fully 2 in. in diameter. They vary in colour from a deep rich crimson to a clear yellow, and in some flowers both colours are combined. They seem to be crosses between *P. atrosanguinea* and *P. insignis*, both Himalayan species with wrinkled, trifoliate leaves, which are covered with silvery down on the under surfaces.

New Variety of Iris Douglasi.—A distinct and well-marked form of this fine Californian Iris is now in flower in the Kew collection. Its foliage is more erect than that of the type, without the conspicuous ribs on the surfaces and the reddish tinge at the bases of the leaves. The flowers are of a creamy-white, delicately pencilled with mauve, and have a blot of orange colour on the claws. This variety was collected at Santa Cruz, California, and though not so showy as many kinds is well worth including in every collection of Irises.

Hunnemannia fumarisæfolia.—We met with a good specimen of this handsome Mexican plant at Oakfield the other day. It is an erect-growing perennial from 2 ft. to 3 ft. high, with glaucous leaves, which, as its specific name implies, resemble those of some of the Fumitories. Its flowers are large and showy, of a rich orange colour, and in form resemble those of the well-known *Eschscholtzia californica*, but superior to them, inasmuch as they continue in perfection for a considerably longer period.

Cypripedium irapeanum.—A considerable number of this rare Mexican Orchid was offered for sale at Stevens' this week, and as it seems it can now be imported successfully, we hope to see it more widely cultivated, as it is one of the finest of greenhouse Lady's Slippers. The flowers, which are showy, have an unusually large, bright yellow, pouch-like lip, and as many as seven blossoms are produced on each stem. Some of our most skillful cultivators are, we find, now turning their attention to this interesting class of Orchids.

Calliandra tereginata.—This is now one of the most attractive plants in the Palm-house at Kew. It is a West Indian shrub about 6 ft. high, with a flattish head, which is studded profusely with tassel-like clusters of flowers, the stamens of which are long and whitish and the tips of a reddish brown. The leaves consist of about three pairs of leaflets, which give the plants a light and elegant appearance.

Nigritella suaveolens and N. coccinea.—These two Alpine Orchises are now very beautifully in flower in the York Nurseries. The colour of the former is a light soft rose, and its flowers are deliciously fragrant; that of the latter is bright scarlet. They thrive well when planted in well-drained sandy peat.—R. P.

Royal Horticultural Society.—Arrangements have been made for holding an evening *fête* in the gardens at South Kensington on Wednesday next. Upon this occasion various systems of electric lighting will be displayed. The conservatory and the flower show tents will also be brilliantly illuminated. As the members of the International Telegraph Conference, now being held in London, will

be present, every effort is being made to render this occasion one of the completest exhibitions of open-air electric lighting ever seen. The whole of the arcades, quadrants, and exhibition tents will be connected and lighted, so that in the event of wet weather it will be possible to walk entirely round the gardens under cover.

Calochortus Benthani.—This rare and pretty species we saw a few days ago in flower at Kew. In size and form of blossoms it is similar to *C. elegans*, but the colour of the flowers is deep rich yellow, and the inside and margins of the sepals are covered with short, dense hairs of the same colour. It is a native of California whence it has been lately imported successfully in quantity.

Melons.—We have received from Mr. Gilbert, of Burghley, a fine fruit of his *Netted Victory*, a white-fleshed Melon of the very finest flavour, even this year when Melons, as a rule, are not remarkable in that respect. It is nearly related to his *Victory of Bath*, also a very fine Melon, and one to which many prizes have been awarded. *Netted Victory* has also more than once been certificated.

Hardy Rose-coloured Lily.—Messrs. Froebel & Co. have sent us a photograph representing this beautiful variety of the common white Water Lily (*Nymphaea alba*) growing luxuriantly and flowering abundantly in a large tank in their nurseries at Zurich. This Lily promises to bloom freely this year at Kew, and we hope soon to see it adorning our ornamental waters everywhere.

Oncidium macranthum var. hastiferum.—A fine variety of this large-flowered *Oncidium* is now in flower in Mr. Bull's nursery at Chelsea. It is furnished with from forty to fifty blooms, each about 3 in. across, with pale olive-yellow sepals, bright yellow roundish petals, and a brownish-crimson hastate lip surmounted by a white crest. The flower-spike measures from 5 ft. to 9 ft. long; it is, like the type, a native of Ecuador.

Tuberous-rooted Begonias at Chelsea.—Messrs. Veitch & Sons still continue to produce improved varieties of this popular family of plants, the most recent results being remarkable not so much for the large size of the blossoms as for the rich and uncommon colours which they possess, varying, as they do, from the most intense scarlet to a pale rose. One variety in particular is very beautiful, its flowers being of fine form and of a pleasing cherry-rose tint. An extensive collection of the older varieties is also in full beauty and well worth a visit.

Primula capitata.—The flowers of this beautiful Himalayan Primrose assume a variety of shades in cultivation, and by far the finest form of it with which we have yet met is now in full beauty on one of the rockeries at Kew. Its blossoms, which are of a deep rich purple, are of large size, and contrast admirably with the white mealy substance with which the flowers are enveloped. It would be interesting to know if these fine varieties can be perpetuated by means of seed or by off-shoots only, which would, we imagine, be rather a slow process.

Hæmanthus Kalbreyeri.—The brilliant effect which this showy bulbous plant produces when grouped in large numbers is unsurpassed by any other plant with which we are acquainted. The number of flowers borne on each stem is very remarkable, and as they develop in quick succession, thus supplying the places of those that die off, the length of time the plants last in flower is accounted for. Such a sight as that which we saw a day or two ago in Mr. Bull's nursery at Chelsea, where hundreds of plants of this *Hæmanthus* are now masses of dazzling scarlet, is not often seen.

Orchids at Chelsea.—The Orchid houses in Messrs. Veitch & Sons' nursery are still gay with *Odontoglossums*, *Masdevallias*, and *Oncidiums*, including a fine example of the beautiful *O. Lanceanum* and various species of *Lælias* and *Cattleyas*. The most conspicuous feature, however, is the fine display of East Indian kinds, consisting of a large number of *Aerides odoratum* with its numerous varieties; also *A. virens*, *A. maculosum*, *A. Larpentæ*, *A. Lobbi*, and the rare *A. Schraderi*, all in vigorous health and bearing hundreds of flower-spikes, the aromatic perfume from which is delicious. The length of time during which these Orchids continue in perfection, both in a cut state and on the plants, much enhances their value for decorative purposes, for they have been in flower already a week or so, and will produce a succession of blossoms for several weeks to come.

Special Prizes.—We are requested to state that the prizes offered for competition in "Class G" at the next meeting of the Royal Horticultural Society will be for twelve sorts of vegetables instead of thirteen, omitting Globe Artichokes, which will not be ready generally at that date.

We learn that Mr. F. W. Moore, eldest son of the late Dr. Moore, has been appointed curator of the Botanic Gardens, Glasnevin, an appointment which we are sure will give universal satisfaction. Mr. Moore has been for some time curator of the College Botanic Garden, Dublin. We believe that all who know Glasnevin will feel that the best thing has been done in this case.

Messrs. Carter's Annuals.—The exhibition of these, now being held in the Royal Botanic Gardens, Regent's Park, is well worth a visit, though, owing to the late unfavourable state of the weather, it will yet be in better condition. It comprises all the most popular annual border flowers, together with many that are as yet little known, but which as shown cannot fail to be appreciated. Amongst the older types the different strains of *Gilias*, *Phloxes*, *Nemophilas*, &c., are particularly rich as regards variety of colour. The arrangement of the whole collection is, we consider, an improvement on that of former years.

NOTES ON HARDY PLANTS IN FLOWER.

Kew.—The present season has been highly favourable, in the light soil here, for the growth of the hardy plant collection, though there is yet a comparative dearth of bloom. Amongst bulbous plants *Allium cœruleum* and *A. MacNabianum* are worthy of note, especially the former, the deep blue globular heads of flowers of which are such an uncommon occurrence. *A. atropurpureum* has the deepest red flowers of any, though not such an ornamental plant as *A. MacNabianum*. The white-flowered Bearded Harebell (*Campanula barbata alba*) is a pretty plant well worth growing, as is also the type. Pentstemons are showy just now, and, in addition to those previously alluded to, we noticed *P. Wrighti* and other choice kinds. Amongst Irises the original type of Kämpfer's Iris is very beautiful, though inferior in form to some of the varieties that have sprung from it. The Portuguese Iris (*Xiphion lusitanicum*) is the best of the yellow-flowered kinds, its rich colour being very attractive. The Japanese variety of *I. sibirica* is much superior to the type; it resembles *I. sanguinea* in size, but it is a shade or two lighter in colour. *Dianthus dentosus*, one of the prettiest of Pinks, has flowers of a bluish-purple colour about the size of a florin and toothed at the edges. It is very dwarf and produces flowers in abundance. Amongst Alpines the rarest in flower are *Edraianthus pumiliorum* and *E. caricinum*; they are, however, scarcely in a condition to comment on their merits. *Anthemis Aizoon*, an interesting Composite with narrow, hoary leaves arranged in a rosette-like tuft, is producing white flower-heads $\frac{3}{4}$ in. across. The Edelweiss is growing here in an ordinary border larger than we have yet seen it, the flower-heads being nearly 3 in. across; but its leaves are almost devoid of the characteristic white down with which specimens grown in high Alpine regions are furnished.

Wimbledon Park.—The garden of G. Joad, Esq., at Oakfield, so richly stocked with hardy plants, is now highly interesting, the majority of them being in flower. Not only does the collection represent plants in general cultivation, but it also contains many that are probably not in cultivation elsewhere in this country, a remark which applies more particularly to rare European plants, to which Mr. Joad pays especial attention. Various methods are resorted to here in order to ensure successful treatment of hardy plants, for, besides the extensive rockeries and beds out-of-doors, there is a capitally constructed rockery under glass and spacious houses for the tender kinds and those little known and of doubtful hardiness. Amongst the rarer of the Alpine plants we noted the pretty dwarf Androsace *Wulfeniana*, from the Styrian Alps, a plant which grows in dense rigid tufts about 2 in. high, and which are studded with vivid rosy blossoms. *A. glacialis* is another compact-growing species, but the flowers in this case are smaller and of a paler hue than those of *A. Wulfeniana*. The Himalayan *A. lanuginosa*, too, is well established in a deep crevice of the porous tufa, with which the rockery is constructed, and so placed that its long slender branches of silky leaves hang over a dry ledge, an indispensable condition as regards its successful culture. Another Himalayan gem of rare beauty is the Hoary-leaved *Cyananthus* (*C. incanus*). Though reputed to be difficult to cultivate, it succeeds admirably with Mr. Joad planted on the indoor rockery, where it is now covered with pretty violet-purple flowers. The Mont Cenis Harebell, though perhaps not so showy as many others, is nevertheless an extremely rare and interesting species. It grows but 1 in. or 2 in. high, is tufted in habit, and produces small funnel-shaped blossoms singly on slender stalks. Here we met with the singular *Lewisia rediviva* in flower. Its blossoms measure about 2 in. across, are of a bright rose tint, and are surrounded by a few fleshy erect leaves. It is so dwarf that the flowers appear to be lying flat on the soil. Fine examples of *Campanula fragilis*, with its branches covered with blossoms, hang over the ledges of the rocks, and when seen in such a thriving condition it is one of the prettiest of the Harebells. One of the finest of the *Silenes* is undoubtedly *S. virginica*, which we saw here in full beauty. Its flowers are as brilliant as those of a scarlet *Pelargonium*, and the petals are beautifully fringed. The little Grass-leaved *Lithospermum* (*L. petraeum*) is thriving here better than we have hitherto seen it,

and produces its pretty deep blue flowers in profusion. It requires apparently a dry position during winter in order to grow it successfully. The *Pelargonium*-flowered *Erodium* (*E. pelargoniflorum*), succeeds well in this house and flowers very freely. It is somewhat straggling in habit, but its blossoms are very pretty, being pure white with two conspicuous purple-black blotches on the upper petals, from which radiate faint pencillings. The charming little *Erpetion reniforme* is quite at home in one of the nooks in the rocks, and is covered with its pretty Violet-like blossoms. Various kinds of *Ixia*, *Babiana*, *Sparaxis*, &c., succeed admirably here, and enliven the surroundings with their gay spikes of blossoms. Such plants as *Veronica taurica*, *Erodium macradenum*, *Gazania ringens*, and a host of other Alpines of the commoner type may be seen in masses, and are now covered with flowers. The Nepalese Poppy (*Meconopsis nepalensis*), too, is a noble occupant of this house; also the showy *Lilium tenuifolium* and *Calochortus splendens*. In outside borders, amongst a host of plants in flower, we noted a fine example of one of the Rocky Mountain Pentstemons with long dense racemes of clear cerulean-blue flowers. Most of the *Geraniums* are in flower, including the handsome *G. armenum*, one of the best of the large-growing kinds, and the pretty *G. subcaulescens* with its rosy blossoms, with a deep purple centre, is also the most desirable of the dwarf species, together with its near ally, *G. cinereum*, which is similar in growth and habit, but with the black spot in the blossoms. *Helenium Hooperi* is one of the showiest of the Composite family at present in flower, the rich orange flower-heads being highly attractive. The same remarks apply to *Senecio Doronicum*, which is amongst the finest of the Groundsels, as it is of dwarf growth with flowers of a similar colour, but smaller in size. *S. abrotanifolius* is not often met with in flower, but here we saw it in fine condition, producing several of its bright orange-coloured flower-heads. *Arnica montana* is another good Composite and well worth growing. It is yet too early for most of the Larkspurs, though the Cashmere species (*Delphinium cashmerianum*) has for some time been in flower, and a very desirable plant it is, as it is dwarf and flowers in profusion. The Caucasian Primrose (*Primula luteola*) we saw here finer than we have yet met with it; the plants are growing under the shade of a wall, which seems to suit it admirably. The Sikkim Primrose (*P. sikkimensis*) growing in the same spot was also remarkably fine. *Cynoglossum montanum* is one of the best of the Borage-worts, and makes a showy object for some time, and quite as rich in colour as *Mertensia virginica*, which is so much esteemed. The Pea family was numerous represented, the most noticeable being the Iberian *Coronilla* (*C. iberica*), which is now gay with its large heads of bright yellow blossoms hanging over the ledges of the rockwork. Another desirable dwarf plant is *Astragalus vaginatus*, which produces its rich deep purple flower-heads abundantly. *Orobis canescens* is one of the most useful plants of its kind and very showy, and keeps in perfection for a long time. The Harebells thrive capitally in this garden, judging by the large plants of the white *Campanula nobilis alba*, *C. barbata*, *C. eximia*, *C. turbinata*, and others; the last-named species is without doubt one of the finest of all the dwarf kinds, and quite unsurpassed by any of the newer species. Various kinds of terrestrial hardy and half-hardy Orchids Mr. Joad grows very successfully. Those now in flower comprise the rare *Satyrion aureum*, the pretty *Orchis laxiflora*, and others less rare. The rarer of the Alpines in flower on the open rockeries include the neat-growing *Trifolium uniflorum*, which is so seldom met with; *Linaria organifolia*, one of the prettiest of all the species; *Armeria juncea*, figured in THE GARDEN (Vol. XIV., plate 146); *Achillea Clavennæ*, *Anthemis Aizoon*, and *Anthyllis erinacea*, a singular dwarf shrub covered with spines and producing small purplish flowers abundantly. *Gypsophila cerastioides* is also a charming little plant, quite distinct from its large-growing and straggling congeners, and should adorn every rockery. Of the rare European plants, *Saussurea discolor* (a dwarf species with bluish flowers), *Chamaepeuce gnaphaloides* (a species with no prickles on the leaves), *Achillea macrophylla*, and others were particularly noteworthy.

Bromsgrove.—The rockeries here have been and are beautiful in spite of the constant heavy rains. Iberises have been unusually prolific of bloom; also *Phlox frondosa* and *subulata*; *Saxifraga pyramidalis* bears dozens of delicately-branched candelabra; *Linum narbonense* has survived the winter in most cases and is blooming well, and *Aquilegia cœrulea* has never done so well, although quite unprotected through the long winter and tardy spring. I have succeeded in raising and blooming *Aquilegia grata* from seed, supplied by Mr. Thompson, of Ipswich. It is a little gem; unfortunately its delicate blooms have been sadly splashed by the mud surge which the late rains have raised. Bedding plants are late and unsatisfactory, but we had no difficulty in raising an ample stock of *Mentha Pulegium* which many people seem to have lost. I have seen some *Viola* blooms raised by Messrs. Dickson, of Edinburgh, which will cause genuine delight and surprise when sent out. Two in particular

I noted of different shades of blue, large in size, perfect in shape, and thick in substance. It would really seem impossible to improve on these lovely flowers. Has any one grown *Viola picturata*? It is a little gem. I should like to try it with pink Daisies; the harmony would be charming.—H. M.

Kirkstall.—Just now the best blooming plants on my rockeries are the *Helianthemums*, such as *Royalty*, *Rosy Gem*, *Purity*, *Orange Perfection*, and *vulgare*. *Silene alpestris* has snow-white flowers of good substance, and they do not suffer as those of most plants now do from heavy rain; *Lychnis chalcidonica* fl.-pl. is very showy; *Aquilegia chrysantha*, in a moist position, has increased in size very much, and is just beginning to bloom freely; *Dianthus* are doing well; *D. alpinus* and *D. neglectus* are now both in bloom; patches of *Veronica rupestris* are sheets of rich dark blue; *V. verbenacea*, too, is now at its best. No rockery should be without these two *Veronicas*; they are always to be depended upon; they are vigorous, and produce abundance of flowers of an unusual shade of colour. All my *Campanulas* have made a good deal of growth, and are now beginning to flower freely. A few of the hardy *Geraniums*, too, are dense bushes of healthy foliage, dotted with rather frail blooms. Of *Aster alpinus* with its antique-coloured flowers, we have good clumps which are very effective.—JOHN WOOD.

Tottenham.—The quaint-looking *Iris susiana* is now finely in flower on the rockery in Mr. Ware's nursery; it apparently thrives best when planted on elevated, well-drained spots. Its sombre-tinted flowers are quite unlike those of any other hardy plant. Amongst hardy *Cypripediums* the rare little *C. candidum* is flowering freely; its blossoms are a trifle smaller than those of *C. parviflorum*; the sepals are of the same colour as those of that kind, but the lip is about 1 in. long and egg-shaped, pure white, and shining. Amongst *Calochorti* we noticed *C. elegans* and its large-flowered varieties *Nuttalli* and *Maweanus*; also the beautiful yellow *C. pulchellus*. It is yet too early for *Lilies*, but *Lilium tenuifolium*, one of the most graceful and pretty kinds, is already producing its scarlet, turban-shaped blossoms. *Moræa pavonia*, a pretty Cape bulbous plant, has flowers from 1½ in. to 2 in. across, pure white with deep blue spots at the angles of the corolla. The white-flowered form of *Lychnis Lagasce* is very pretty, and it is quite as free flowering as the original kind. The double-flowered *Geum coccineum* is certainly one of the most useful of hardy plants; its blossoms are as double as those of a *Pelargonium*, and they last considerably longer in perfection.

Tring.—I send you flowers of two plants which are now conspicuous for their delicate beauty in my garden at Drayton-Beauchamp, Tring. The sprays of small white flowers are those of *Cotoneaster nummulariaefolia*, which I have trained into a standard some 8 ft. high; and the branches spread and weep in a most graceful manner, and are perfectly smothered with bunches of little pure white blooms. The *Vetch* I received in seed some five years ago from the Continent as *Vicia armena*. It has flowered every summer but never with such healthful and elegant luxuriance as at the present time. It appears to be impatient of heat and drought, and the late moist and sunless spring seems to have suited it exactly. According to Boissier's "*Flora Orientalis*," Vol. II., p. 583, *Vicia armena*=*V. persica* var. *stenophylla*, and is a native of Mount Ssahend, near Aderbidjon, in Armenia. It is a plant which ought to be in every garden, but it is not easy to propagate. It has not at present ripened seed with me.—H. HARPUR CREWE.

EFFECTS OF THE WINTER.

THE following is the condition of the more tender plants and shrubs in South Derbyshire after the late exceptionally severe and prolonged winter:—

KILLED.—*Chamærops Fortunei*, *Agave americana*, *Myrtle*, *Sweet Verbena* (*Aloysia citrodora*), *Passiflora cœrulea*, *Gum Cistus* (two plants), *Mesembryanthemums*, *Echeveria secunda*, *Crinum Moorei*, *Begonia Vetchi*, B. Frœbeli, B. Pearcei, *Convolvulus Cneorum*, *Aquilegia cœrulea*, *Bravoa geminiflora*, *Iris alata*, *I. tingitana*, *I. caucasicæ*, *Lilium Krameri*, *Fritillaria oranensis*, *F. recurva*, *Tritoma grandis*, *Commelina cœlestis*, *C. c. var. alba*, *Wallflowers*, single and double (all but four plants).

INJURED VERY SEVERELY.—*Bay*, *Arbutus*, *Aucuba japonica*.

INJURED, BUT RECOVERING RAPIDLY.—*Common Laurel*, *Magnolia grandiflora*, *Berberis Darwini*, *Gum Cistus* (one plant), *Escallonia macrantha*, *Tritoma Uvaria*, *Pampas Grass*, *Helleborus lividus*, *Gunnera scabra*, *Schizostylis coccinea*, *Iris stylosa*, *Laurustinus*.

ESCAPED UNINJURED (having been protected with matting or Fern litter).—*Camellia*, *Chamærops excelsa*, *Amaryllis Ackermanni*, *A. vittata rubra*, *Lilium giganteum*, *L. auratum*, *L. Thomsonianum*, *Scilla maritima*.

ESCAPED UNINJURED (without any protection).—*Araucaria imbricata*, *Abies Douglassi*, *Cedrus Deodara*, *Wellingtonias*, *Euonymus japonicus*, *E. variegatus aureus*, *Bignonia radicans*, *Hydrangeas*, *Tropeolum speciosum*, *Tricyrtis hirta*, *Agapanthus umbellatus*, *Lilium speciosum*, *L. monadelphum*, *L. pardalinum*, *L. eximium*, *Hyacinthus candicans*, *Gladiolus gandavensis*, *G. Colvilli*, *Watsonias*, *Iris Kämpferi*, *I. Histrio*, *I. reticulata*, *Orchis foliosa*, *Primula cortusoides*, *Rose Maréchal Niel* (on south wall), *Pardanthus chinensis*, *Tritonia aurea*, *Anomatheca cruenta*, *Babianas*, *Zephyranthes candida*, *Pan-cratiun illyricum*, *P. maritimum*, *Libertia pulchella*, *L. azurea*, *Narcissus Tazetta* (several varieties), *N. triandrus*, *N. Bulbocodium*, *N. Grælsi*, *Chionodoxa Forbesi*, *Tulipa persica*, *T. Greigi*, *T. Kolpakowskiana*, *T. Haageri*, *T. celsiana*, *Brodiaea coccinea*, *B. congesta*, *Triteleia laxa*, *Crinum capense*, *Sternbergia lutea*, *Dicentra spectabilis*, *Plumbago Larpentæ*, *Clematides*, *Myosotis dissitiflora*, *Papaver alpinum*, *Fritillaria persica*.

Roses of all kinds have suffered severely, and the losses are too numerous to mention.

HUGO HARPUR CREWE.

Calke Abbey, Derby.

CATALOGUE OF CALIFORNIAN FERNS.

POLYPODIUM (Polypody).—*Vulgare* (L.), northern; *Scouleri* (H. & G.), central, rare; *californicum* (Kaulf.), common. There are several other species credited to California. I think a careful study of the genus as it occurs in our State would reduce the number of species to one or two. *P. californicum* is exceedingly variable, according to the place in which it grows. Its different forms have led to a variety of names, such as *intermedium falcatum*, *occidentale*, &c.; but there does not seem to be need for so many species. And it is possible that *P. vulgare*, which is credited to northern California and Oregon, may include all the rest.

GYMNOGRAMME (Gold and Silver Fern).—*Triangularis* (Kaulf.), common. A beautiful plant with deep green leaves on the upper side, and silver or golden-dusted underneath, according to age.

NOTHOLENA (Cloak Fern).—*Candida* (Hooker), southern; *Parryi* (Eaton), southern; *Newberryi* (Eaton), southern. These beautiful little Ferns are not found much north of San Diego. The *N. Newberryi* is a beautiful velvety Fern of uncommon attraction. *N. candida* has a fine coloured powder, somewhat like that of our *Gymnogramme*.

CHEILANTHES (Lip Fern).—*Californica* (Mett.), "Lace Fern." *Santa Barbara*, San Diego, Santa Cruz, Yosemite, and north to Butte County, somewhat rare, rocky crevices; *viscida* (Davenport), south-eastern to Downieville, discovered by Lemmon and Parry; *Cooperæ* (Eaton), southern, Santa Barbara; *gracillima* (Eaton), northern; *Fendleri* (Hooker), from Mt. Diablo, south; *Clevelandi* (Eaton), southern; *myriophylla* (Desv.), Lake County to San Diego. A beautiful genus, most abundant in dry and barren regions, among rocks.

CRYPTOGRAMME (Allosorus of some authors).—*Acrostichoides* (R. Brown), western side of the Sierras, from northern to southern.

PELLÆA (Cliff Brake).—*Breweri* (Eaton), high Sierras, Hope Valley; *Bridgesi* (Hooker), high Sierras; *Wrightiana* (Hooker), high central Sierras to San Diego; *ornithopus* (Hooker), common on sandy hillsides, central; *brachyptera* (Baker), northern Sierras; *andromedæfolia* (Fee), common from Santa Cruz south; *densa* (Hooker), Yosemite and in Sierras, north and south. A very pretty genus of Ferns, easily cultivated, and improved as house plants or outdoors.

PTERIS (Common Brake).—*Aquilina* (L.), found everywhere around the globe. Ours is a variety called *lanuginosa*, and only differs from the type in having a kind of woolly hair growing on the fronds.

ADIANTUM (Maidenhair).—*Pedatum* (L.), moist shaded cliffs of streams throughout the State, as well as United States; *emarginatum* (Hooker), similar localities, but more general. This is the *A. chilense*, central and southern; *tricholepis* (Fee.), said to be found by Nuttall at Monterey—I have never seen it; *Capillus-Veneris* (L.), southern.

LOMARIA (Jointed Pod Fern).—*Spicant* (Desv.), from Santa Cruz to Oregon, deep ravines in mountains, rare below central California. The fruiting fronds resemble slender Bean pods.

WOODWARDIA (Chain Fern).—*Radicans* var. *americana* (Hooker), from Santa Cruz Mountains to Santa Barbara, also north in Yuba County. One of our largest and most showy Ferns; in the mountains about springs.

ASPLENIUM (Spleenwort).—*Trichomanes* (L.), var. *incisum* (Moore), San Diego; *Filix-fœmina* (Bernh.), common along beds of mountain streams throughout the State; var. *rhaeticum* (Moore), found by Miss Pelton, 1877; locality not given.

PHLEOPTERIS (Beech Fern).—*Polypodioides* (Fee.), said to exist in northern California; *alpestris* (Mett.), highest Sierras; found by Miller and Lemmon.

ASPIDIUM (Shield or Wood Fern).—*Munitum* (Kaulf), central and northern; the varieties *nudatum* and *imbricans* (Eaton) are found in the Sierras; *aculeatum* (Swartz), in Santa Cruz Mountains, one form of this has been known as *A. californicum*; *nevadense* (Eaton), Sierras; *patens* (Swartz), Santa Barbara; *argutum* (Kaulf), central and southern, perhaps north.

CYSTOPTERIS (Bladder Fern).—*Fragilis* (Bernh.), throughout California, including the variety *dentata* (Hooker), extremely variable.

WOODSIA.—*Scopulina* (Eaton), found by John Muir, probably in the Sierras.

BOTRYCHIUM (Moonwort).—*Simplex* (Hitch.), Yosemite; *ternatum* (Swartz), northern Sierras; *virginianum* (Swartz), locality not given.

There are sixteen genera and forty-three species of Ferns in California, and further discoveries will doubtless increase the number; while it is likely some few species mentioned may not hold good, but come within other specific limits.—*California Horticulturist*.

THE KITCHEN GARDEN.

Asparagus.—The writer on Asparagus (Vol. XV., p. 467) must have been singularly unfortunate in the samples of green which he has tasted to be able to compare them adversely with the blanched heads that appear to have given him so much satisfaction, or else he must have a different taste from that of most people who know what good Asparagus is. If white Asparagus is so much superior to the green, how comes it that in private gardens where the best of everything is produced there is no demand for it, and it is only in cities and towns where people hardly know what it is to have good fresh vegetables blanched Asparagus is tolerated. That the green may deteriorate by exposure and become bitter I can readily understand, and it is just possible that the white having nothing to lose in flavour may be improved thereby. I see it is remarked in a late number of THE GARDEN that the best French Asparagus has pinkish points, which clearly shows that that slight particle of colour is an improvement on the blanched, and it is only reasonable to suppose that an extratinge would improve it still further. In the same paper it is also admitted that the best English has a shade of green on the top, which is the very thing I have all along stated, and I contend that the more there is of it the better it is. The subject is an important one and is worthy of free and full discussion, for if there is any advantage to be derived by heaping soil on the beds to prevent Asparagus being exposed to the light, by all means let us resort to the practice. In blanched Asparagus what can there be but crude, unconverted sap? and if whiteness had anything to do with improving it, why then the Belgian and Dutch ought to be the best, as it appears that what they grow and send is whiter than any.—S. D.

Seakale for Forcing.—As far as my experience goes I agree with "J. S. W." (p. 520) that there is no occasion to have two-year-old plants for forcing if anything like good cultivation be given to seedlings the first year. Last winter I forced a quantity of plants and cut the produce within nine months of the date at which the seed was sown, and it was quite equal to that from purchased plants, which, although apparently much stronger, are as a rule most ruthlessly broken in lifting. At the same time I prefer raising part of my stock from sets or pieces of roots for the earliest forcing, and reserve seedling beds for a late supply, as even weakly-looking crowns if left in the ground and blanched will furnish very serviceable dishes for late use. We all know how tenacious of life Seakale is, but at the same time the more the roots are broken off in removal the less size and weight there must be in the produce. A season like the present is greatly in favour of sets, as seeds of all kinds start slowly, and when they do start they get badly injured by slugs, while pieces of roots wintered in sand and planted in rows 2 ft. apart are now making fine plants. Seedlings, if sown in good soil early and thinned out so as to have plenty of room in which to develop their leaves, will astonish those who have hitherto only sown thickly in seed beds.—J. GROOM, *Linton Park, Maidstone*.

Culture and Uses of Tomatoes.—In growing Tomatoes out-of-doors in a climate like that of England, the nearer you can grow them to the ground, keeping them free from the splash of the rain, and the greater surface of plant you can expose, not simply to the sun, but also to the heat radiated from the earth's surface, the better. In India I used to grow them extensively on a horizontal framework of Bamboos, tied to stakes about 18 in. from the ground. I have done the same in England, using some old sheep hurdles resting on blocks about 9 in. high; the Tomato spreads over the bar of the hurdle and ripens better than even when trained to the wires of a south wall. This hint, if new, may be of use to Tomato growers. The ripe Tomato, as a rule, is used by Englishmen only as sauce or in soup; split into two, and fried with bread crumbs it is delicious; sliced raw with Onions and dressed with oil and vinegar, it makes

the tastiest salad possible; and covered with strong vinegar and kept in jars, it can be preserved for months, ready when required to do duty as a salad. But it is not only the ripe Tomato that is of use. The large quantities of green Tomatoes that are thrown away late in the autumn, not being sufficiently advanced to ripen of themselves, can be converted into the most luscious jams or tasty pickles. The green Tomato forms the best vehicle for either sugar as a preserve or vinegar as a pickle of any vegetable substance grown.—A. T. P.

Keeping Asparagus Fresh.—The following plan of preserving Asparagus fresh for several days may be of service to your readers. We never allow the heads to more than break through the ground, and the beds are looked over three times a day. In order to keep the heads fresh we have holes dug in a shady situation, and here we lay those that are not required for the day's consumption, covering them lightly with mould, and placing a tile over the hole to exclude rain. In this way the delicate flavour of the Asparagus is entirely preserved. I may add that our cook peels every stick of Asparagus before boiling, and it is a rare case in which any is not eatable to the very end.—CONSTANT READER.

Birds and Seeds.—Finches I find to be the most destructive seed eaters; even nets, sometimes, no matter how well secured, fail to keep them out. Where one sows perhaps a dozen or a score of different sorts of Broccoli and other winter greens, to dress them with red lead and keep each kind separate is a tedious operation; but for Turnips, Radishes, and Peas, the matter is very simple, and involves no trouble or expense worth mentioning. It is only necessary to put the seeds we intend sowing in a basin or some other vessel, scatter a little lead over them, add a very small quantity of water, and mix the whole together till each seed has taken on a coat of red. If this was more regularly attended to there would not be so many complaints of loss of crops from the depredations of birds and mice.—E. HOBDAV.

Rosette Colewort.—In a good many private gardens Coleworts are not much grown. Where it is the custom to allow the Cabbage stems, from which the spring and summer Cabbages have been cut, to remain for a second crop, there is generally plenty of young, tender hearts equal to Coleworts without making a special sowing or planting. But often during severe winters, as was the case in many gardens last winter, the old Cabbages were destroyed whilst the young Coleworts remained uninjured, proving that it is hardly wise to depend upon one source of supply. If the Rosette Coleworts be sown now thinly in drills they will be fit to transplant about the end of next month, and may be planted as a catch crop to fill up vacancies anywhere, giving each plant about a square foot to grow in.—E. HOBDAV.

VEGETABLE CULTURE FOR MARKET.

ONIONS.—For good Onions there is always a large demand, and late in the season they fetch high prices. In nearly all market gardens round London Onions are grown to a large extent both as summer and winter crops. In the neighbourhood of Lea Bridge large fields are devoted to them, and from this district come large quantities of the finest produce brought to market. Great breadths of Onions are also grown at Fulham, Chiswick, Deptford, and Mitcham, the land thereabouts being light and rich and well suited for their culture. The main spring sowing, which consists usually of the Deptford and Reading varieties, is made as soon after the middle of February as the condition of the soil and weather permits. If the seed be good and is sown broadcast, 9 lb. to 12 lb. per acre is used, but if sown in lines only 8 lb. to the acre is needed. Land intended for Onions is generally roughly trenched during winter and thrown into ridges, so as to become thoroughly pulverised and sweetened by the action of frost. During dry weather in February the ridges are levelled and the surface rendered smooth by raking and rolling, after which the seed is sown either broadcast or in drills 9 in. to 10 in. apart. If small pickling bulbs be desired, seed is sown broadcast at the rate of 20 lb. per acre. After sowing, the seed is raked or harrowed in, and the operation is completed by rolling the surface firm and even. After the young Onions appear above the ground, weeding and thinning are proceeded with as may be required. The varieties generally selected by growers for

market are the Reading or White Spanish, Deptford, Brown Spanish, and James' Keeping. The Silver-skin, for pickling, and the White Spanish, Lisbon, and Tripoli varieties are sown in August to produce young salad Onions for winter and bulbs for spring use. The Deptford variety is one of the best sorts, producing heavy, firm bulbs, which keep well through the winter months. Broadcast sowing is considered the best for spring-sown crops, as involving less labour; and as the bulbs, after thinning, stand at regular distances apart over the whole area, the produce per acre is considerably more than when sown in beds or lines. Seed sown in the autumn is, however, sometimes drilled on beds 4 ft. or 5 ft. wide, these being divided by narrow alleys which serve as walks for labourers who weed the beds and draw the crop as required for market, but this crop is also often sown broadcast.

Onion seed takes a long time to germinate, but if the ground be clean and well tilled, weeds will not appear much sooner than the Onions, or, at least, not so thickly as to choke them. As soon as the Onions have fairly come up, women or men accustomed to Onion cleaning are set to work amongst them. These operators are furnished with the short-handled 2½-in.-wide hoes, with which they hoe down the weeds and thin the whole crop with wonderful certainty and expedition. The field is marked off into strips for the guidance of the hoers, to each one of whom there is a space of 6 ft. given, so that were four cleaners employed the strips would each be 24 ft. wide. People accustomed to this work do not trample carelessly about; nor, indeed, can the crop be materially damaged by doing so, for the Onions that are thus prostrate to-day are nearly erect to-morrow. Each plantation is generally cleaned by this means three times during the season, the last cleaning being made about the end of June or early in July, and any large weeds that appear after that time are pulled out by the hand. Towards the end of August or early in September the Onions, being ripe, are harvested when dry. Those that are green and thick-necked are laid aside for immediate sale; but the firm and sound bulbs, particularly of the Deptford kind, are either cleaned of any loose scaly skins and spread out a few inches deep over the floor of a loft, or tied into bunches and strung in pairs over poles or on pegs in a loft or shed, so that they can be marketed at any convenient season during winter and spring.

The profits on a good crop of spring-sown Onions are comparatively large, although the prices vary considerably in some seasons. Sometimes as much as £45 per acre is made of them by the grower, the purchaser being at the expense of harvesting the crop. At other times, however, £30 per acre is considered a good price. The silver-skinned Onion, which is grown largely for pickling, is sown on good land, the plants being left as thickly as they come up, as the closer they are together the sooner they will cease growing in summer and the better they will ripen their bulbs. Good clean bulbs realise from 8s. to 10s. per bushel in the market. The autumn sowing of Onions is made on ground cleared of Cauliflowers, Cabbages, or other early crops, in the end of July for drawing in a young state from September onwards, but the main sowing is not made till about the middle of August. The autumn sowings are, as a rule, made in beds about 5 ft. wide, and the seeds are covered deeper than those of the spring sowings. Autumn sowings of Onions are not often made broadcast on fields, as they must be weeded, not hoed, in the process of cleaning; the hoeing would thin them too much. As they are only required for drawing when young they do not need to be more than one-third of the distance asunder required in the case of the summer Onions. They are weeded soon after they come up, and once, or perhaps twice, during the winter time. Weeding is performed

by women in dry weather, each of whom takes a small round basket to put the weeds into rather than throw them on the alleys. In marketing these Onions they are cleared off the beds in large patches, and not by picking out the strongest and leaving the weakest, as is generally done, and they are washed, which makes them look white. If a portion be intended for transplanting, a piece of well-prepared rich ground is made ready for them, rolled firmly, and lined off into rows about 9 in. apart, and into these lines the young plants are dibbled about 6 in. apart. These make large saleable bulbs early in July. The kinds used for autumn sowings consist of White Spanish and White Tripoli or Lisbon. Some growers save large quantities of Onion seed, for which purpose well-formed bulbs are selected and planted in spring in rows which vary from 2 ft. to 6 ft. apart, Lettuce, Radishes, Spinach, or other low-growing vegetables being grown as intermediate crops. After the flower-stems make their appearance they are staked at intervals, and twine or cord is strained on either side the rows to prevent the stems being beaten down by hail, rain, or wind. Ordinary Onion seed fetches from 2s. to 5s. per lb., according to the season; but the best seed, or that from improved or rare sorts, is more valuable. In Hertfordshire large breadths of seed Onions may be seen in July, and on good deep land it is considered one of the most profitable of crops.

LEeks.—These form a very remunerative crop to the grower for market who has good rich land and the means of supplying them with abundance of water. Large quantities of them are grown in the valley of the Thames where the soil is moist. The first sowing is made towards the end of January in a frame set on a gentle hotbed, on which has been placed a few inches of light, rich soil. The seed is sown rather thickly and afterwards slightly covered with fine soil. The sashes are then kept close until the young plants appear, when abundance of air is admitted both night and day on all favourable opportunities. If severe weather sets in the sashes are covered with litter or mats. On fine days plenty of water is supplied to the plants, and the soil is kept frequently stirred. If the seedlings are too thick they are thinned out to 1 in. or so apart, and those that remain are gradually hardened off until towards the end of March, when they are carefully lifted and planted out-of-doors in rows about 1 ft. apart, the plants in the row being about 6 in. asunder. Between the rows Lettuces are planted, and these, being of quick growth, are removed long before they can in any way injure the Leeks. The next sowing, which takes place about the end of February, is made out-of-doors in beds, and when large enough the plants are put out in a similar manner to the former sowing in heavily-manured, deeply-dug soil. Another sowing is made six or eight weeks later, and the last one generally about the first week in May. In all cases drills are drawn to a depth of 4 in. or 5 in., in which the plants are put. These in some measure protect the plants in the early stages of their growth and serve as receptacles for water. The frequent hoeing of the ground, which is considered a very important matter, fills in the drills and blanches the necks of the Leeks—one of the main things to be considered in their culture. During dry weather abundance of water is applied, and some growers, after taking a crop of Lettuce from between the rows, heavily mulch the ground with manure. The produce from the first sowing is ready for market by the beginning of August, when it is quickly removed and the vacant ground cropped with other vegetables. The latest sowing keeps up a constant supply of Leeks far into the winter when they are most in request, and when a bad Onion year occurs they pay remarkably well. When lifted for market the roots are left

entire, and, after being washed, the outside leaves are stripped off and the tops shortened; they are tied six or eight together in flat or fan-shaped bundles, packed in round hampers, and sent to market. Most growers save their own Leek seed, and for this purpose a quantity of the best plants are selected and transplanted to a sunny situation where they remain until the seed is ripe. When this is the case the heads are cut off, laid out to dry, shaken out of the husks, and stored in paper or canvas bags until wanted. The chief kind for early crops is the London Flag, but for main or late crops the Musselburgh is mostly preferred.

GARLIC AND SHALLOTS.—These are sparingly grown in market gardens, owing to their being used in small quantities for flavouring purposes rather than in quantity as substantial food. They are generally propagated by offsets from the old bulbs planted in rows in warm sunny positions in March, but if large quantities be cultivated, then seed gives the best results. Seed is sown broadcast or in drills 1 ft. apart in March or April, and the subsequent culture is similar to that of Onions. An acre of good land is said to produce upwards of 6 tons of Garlic from seed, and the wholesale value of this produce varies from £150 to £200. Garlic is one of the most wholesome of vegetables, but in England it is not used so extensively as in France and other Continental countries.

CHILIES AND CAPSICUMS.—These are grown in Cucumber houses or similar places where a brisk heat and plenty of moisture are maintained. The seeds are sown in pots in April, and when large enough the young plants are potted six or eight together in an 8-in. pot in good rich soil and placed on stages in a light position. Plenty of water is given them whilst growing. In August I have seen hundreds of pots full of plants in Mr. Wilmot's garden laden with ripe pods. Some plant them out in frames and in this way obtain abundance of fruit, but the most profitable way is pot culture.

ENDIVE.—This is largely grown in nearly all market gardens round London, and especially in those situated in moist districts. The first sowing is usually made early in May, either in frames or on prepared beds in the open air. In either case good rich soil is used in which to sow the seed, and the surface after sowing is made firm by being beaten with the back of the spade. The chief point in reference to early-sown Endive is to keep the plants continually growing, as if they experience the least check they run to seed or "bolt," as it is termed. On this account early Endive, as a rule, is not grown in very large quantities. The principal sowing is made early in June, and is succeeded by smaller ones to the end of July. In most cases the outdoor sowings are made on the ground on which they are to grow, as on Celery ridges or between the rows of any crops where there is room, and for which the ground was well manured. Sometimes, however, the seed is sown on beds and the seedlings thinned out if too thick and transplanted when sufficiently large to handle. In any case the distance apart of permanent plants is from 12 in. to 15 in. Endive and Lettuces are frequently planted on land alternately, large fields being often devoted to them; sometimes whole fields of Endive alone occur. Blanching is effected by tying the leaves like those of Lettuces with withies or pieces of bast. In from twelve to fifteen days after being tied up Endive is ready for market. The most forward piece is then cleared by pulling the plants up by their roots, and in this state they are packed in hampers and conveyed to market. The Dwarf Green Curled and the Batavian are the kinds chiefly grown, but the former sort is that which is grown in the greatest quantity. The produce from the earliest sowings is ready for market early in August and onwards until Christmas and even later. A few growers house plants for winter and spring supply, but

now, when they have to compete in the market with the French, the prices obtained scarcely remunerate them for their trouble and houseroom.

LETTUCES.—In cool moist soils Lettuces pay the grower much better than many other market crops, inasmuch as they are but a short time on the ground, and a large quantity can be grown in a comparatively small space; they frequently, indeed, fetch more money than Cabbages, which impoverish the ground more and remain on it for a much longer period. The best market Lettuces appear to be the Paris White Cos, Bath Brown Cos, and Grand Admiral Cabbage; and in some cases the Leyden White Dutch Cabbage kind has also given great satisfaction. A hardy constitution is of great importance, but the half-tender kinds are more acceptable for table. The variety of the White Paris Cos, generally known as the London Cos, is the best summer Lettuce in cultivation, owing to its excellent quality and fine colour. The Bath Brown Cos is an excellent Lettuce for standing the winter, and if bound round with a withie or piece of matting when nearly fit for use, it forms a large fine heart of beautiful white crisp leaves with pinkish midribs, and it is grown in large quantities in market gardens on this account. The sowings of Lettuces made between August and December are made on beds, and the young plants are transplanted where they are to remain; but the spring and summer sowings are made where the plants are to stand till they are fit for use, in rows from 16 in. to 18 in. apart, and the seedlings are thinned out in the row to 1 ft. asunder. In this way, and by a careful selection of seed, the plants seldom "run," and are had in use throughout the summer. The demand for Lettuces depends for popularity very much upon the character of the weather; in cold periods they are not so much sought after, but in warm weather there is a great demand for them. In some market gardens banks are thrown up on which to grow Lettuces, and some of the tender Cabbage kinds withstand the winter in that way. In open places, especially where the soil is wet, it is usual to round up beds on which both Cabbage and Cos Lettuces are planted, as in this way less moisture is retained around their roots than when they are planted on flat ground. Lettuce banks have a sharp incline, without special reference to aspect, the important point being to secure shelter. In order to obtain this the banks are thrown up under Apple trees, Currant bushes, &c., and under hedges, and in some cases small Laurels are planted closely along the tops of the ridges and in such a manner as to project over the bank. These Laurels afford good protection, as they retain their foliage all through the winter. Under such circumstances, a Lettuce crop is got off early, and the soil can be again partially levelled to furnish a crop of dwarf Beans or other summer produce. Around Gunnersbury and Kew acres of open spaces may be seen in the spring cropped with Lettuces alone, and long beds of seedlings in various stages under the hedges are kept to supply plants for successive crops.

CELERY.—This is considered by market gardeners to be one of the most remunerative of crops where both soil and situation are suitable for its growth. The Valley of the Thames is considered to be in all respects well adapted for Celery culture, and many acres of land in the Fulham fields and elsewhere are occupied by it. The sowing for the first crop of Celery is generally made early in February; a large main sowing is made in March, and for the latest crop sowing takes place in the middle or end of April. The early and main sowings are usually made in frames on hot-beds, but for a late crop the seed is sometimes sown in the open air on manure beds or in similar positions; the seed is sown at all times rather thickly in moist, light soil, and is but lightly covered. When up the seedlings if too thick are thinned out

to 1 in. or so apart. Some dig out trenches and fill them with fermenting material, on which they place a few inches thick of light, rich soil, and after sowing the seed cover the bed with mats or rough litter until the seed has germinated, when the coverings are removed during the daytime and replaced at night should the weather be unfavourable. In all cases the beds on which Celery seed is sown are made firm either by treading or rolling, and a little light soil is sifted through a fine sieve over the seed after it has been sown. The seedlings in all cases are freely exposed to light and air in order to render them stout and stocky. Those from the first sowing, when large enough, are pricked out in frames on a bed of rotted manure, and those from the main and later sowings are pricked out in May and June on beds similarly prepared on a sheltered border out-of-doors. In these positions they receive abundance of water in order to keep them growing, for a check at any period in the growth of Celery plants is very detrimental. The plants are usually pricked out in rows from 6 in. to 8 in. apart, about half that distance being allowed between the plants in the rows. When planting time has arrived a spade is run between the rows and a good soaking of water is given, after which nothing more is done for a few days. A spade is then pushed under the plants, which are thus carefully raised, separated, and taken on handbarrows or in boxes direct to the trenches. When planted a good watering is given them, and thus they sustain a very slight check through removal; but market gardeners seldom plant Celery in double rows as is done in private gardens, one row in each trench being considered the most profitable way. The strongest plants are in all cases selected and placed in trenches by themselves, and the weaker ones by themselves. In that way a succession is formed, uniformity in the size of the heads is secured, and thus a whole row of plants becomes marketable at one time. They need no sorting, and the ground being cleared is made available for other crops.

The ground on which it is intended to plant Celery is, if possible, prepared in autumn by being heavily manured and trenched, the surface being either thrown up in ridges or left in as rough a state as possible until spring, when it is levelled down to be sown with Radishes. In that case the land is marked out into a series of beds from 5 ft. to 6 ft. wide, leaving a good wide alley between them. In these alleys is placed an extra supply of manure, and in them are planted the earliest Celery plants. By the time these require earthing up the Radishes will have been marketed and the ground cleared of weeds, &c. I have, however, seen whole fields marked off in beds and the trenches dug out in winter in readiness to receive the Celery, the beds being planted with Lettuces or early Cauliflowers. Market gardeners never plant Celery in deep trenches; on the contrary, they contrive to allow the roots after the crop is fully earthed up to be considerably above the bottom of the ridges. Especially is this the case as regards late crops, which in damp badly drained soils are very precarious. During the growing season Celery is abundantly supplied with water, as are also the crops of salad plants, or French Beans, which are invariably grown between the lines. Earthing up is performed for the first time when the plants have become fairly established and are 6 in. high; the sides of the trenches are chopped down on the morning of some fine day, well broken up, and allowed to dry for an hour or two, when two men, one on each side of the row, push the soil with the back of a wooden rake to within a few inches of the plants so as to leave a ridge for the reception of water. At the next earthing the soil is pressed tightly round the bases of the plants, and more of it is chopped down from the ridges; and at the third, which is the final earthing, the ridges are made firm and smooth in

such a way as to effectually throw off the rain. The red and white varieties of Celery are the principal kinds grown, and under the treatment just recorded they become very crisp and solid. Sometimes a crop of Celery is grown for culinary purposes early in spring, and in that case the seeds are sown in June, and the young plants are pricked out rather closely together; they are never earthed up more than once, the object being to secure plants with flavour rather than crispness and good quality.

C. W. S.

PLATE CLXXXVII.

HIMALAYAN PRIMROSES.

(WITH A COLOURED FIGURE OF PRIMULA ROSEA.)

Drawn by CONSTANCE PIERREPONT

PRIMROSES abound nearly all round the temperate zone of the Northern Hemisphere, and one species occurs in the Southern Hemisphere in the extreme south of America. The Alps of Europe and the lofty Himalayan Mountains form, however, their two principal centres of concentration, though Eastern Asia (China and Japan) has supplemented the rich variety of Primroses drawn from these regions by at least two noteworthy species, namely, *Primula sinensis* and *P. japonica*. But it is to the Primroses of the Himalayan region we would now direct attention. It contains probably not fewer than thirty distinct forms independently of colour variations. The Himalayan Primroses are nearly all of an Alpine character, growing at an altitude above sea level of 6000 ft. to 18,000 ft., but chiefly between 9000 ft. and 15,000 ft. Flowering plants, it may be noticed in passing, grow at a greater height in the Himalayan Mountains than in any other part of the world, a few species ascending to the enormous elevation of nearly 20,000 ft.

P. denticulata is one of the commonest, most widely dispersed, and most variable in size and other characteristics of the Himalayan Primroses. It belongs to the same group as the British *P. farinosa*, but it is a much more showy species, even in its most diminutive state. The dark lilac-blue flowers are very numerous, and borne in dense heads on long scapes standing well above the leaves. This species appears to have been the first introduced from the Himalayan region into European gardens, as it was figured in Smith's "Exotic Botany, 1805, vol. ii., plate 114. It inhabits sunny situations and begins to blossom in early spring as soon as the snow melts. Sir J. Hooker collected it in Sikkim at an elevation of 16,000 ft., the plants being from 4 in. to 8 in. high, and the leaves from 1 in. to 2 in. long. At its lower habitats it attains nearly three times the largest size indicated for its highest. *P. capitata* is a variety of *P. denticulata*, the flowers being quite sessile, and forming a close head like a Scabious. *P. erosa* is sometimes regarded as a variety of *P. denticulata*, but it has coarse leaves similar to those of *P. vulgaris*. There is a fine dwarf variety of *P. denticulata* in cultivation at the present time under the name of *P. cashmeriana*. *P. purpurea* is an allied but perfectly distinct species with purple flowers nearly 1 in. in diameter, and sometimes the scapes bear two umbels one above the other. This also inhabits very elevated situations. *P. Jeschkeana* appears to be the same species.

P. Stuarti is a handsome yellow-flowered species of the same group. Its flowers are of a deep yellow, nearly 1 in. in diameter, and borne in loose umbels. *P. sikkimensis* is perhaps the finest of the large growing Primroses of our region. It was discovered and introduced by Sir Joseph Hooker, and figured in Bot. Mag., plate 4597. The discoverer writes of it that "it is the pride of all the Alpine Primulas, inhabiting wet boggy places at elevations of from 12,000 ft. to 17,000 ft., at Lachen and Lachong covering acres with a yellow carpet in May and June. It grows as tall as *P. japonica*, though the scapes usually bear only a solitary terminal umbel. Occasionally there is a second umbel of a few flowers. The flowers are of almost exactly the hue of the common Primrose.

Primula rosea, the subject of the accompanying plate, is, however, the gem of Himalayan Primroses on account of its lovely colour and neat habit. It inhabits the north-west Himalayas, and extends into Afghanistan, growing at an elevation of 8000 ft. to 12,000 ft. From the various collectors' notes it would appear to be a late summer flowering variety. *P. elegans* is a closely allied plant having smaller flowers. *P. speciosa* is a handsome Primrose of the same type, of dwarf habit, with large, deep blue-purple flowers. This has not yet been introduced. *P. petiolaris* is an acaulescent species with distinctly stalked leaves and pale blue flowers, each petal having two deep notches at the tip. *P. floribunda* is a remarkable species, growing at the comparatively trifling elevation of



2500 ft. to 6000 ft. in north-west Himalaya. The yellow, fragrant flowers are small, but exceedingly numerous, each root throwing up several scapes, each of which bears three to six or more whorls of flowers. The whole plant grows from 4 in. to 8 in. high. *P. reticulata* and *P. rotundifolia* are dwarf umbellate Primroses, growing at a great elevation in Sikkim, the former having yellow and the latter purple flowers. We are not aware that either of them is in cultivation, though they are both described as most beautiful. This by no means exhausts the list of Himalayan Primroses, but we will only mention some of the very diminutive species, of which there are several singular and beautiful ones. Foremost amongst these is *P. uniflora*, a species collected by Sir Joseph Hooker, in Sikkim, at an elevation of 15,000 ft. The dried plants are from 3 in. to 6 in. high, and consist of a rosette of exceedingly small leaves, and usually of a single slender scape bearing one relatively larger flower resembling those of a *Soldanella* rather than a true Primrose. *P. minutissima* is a native of the north-west Himalaya, at an elevation of from 15,000 ft. to 18,000 ft., in the Donkia Pass. The whole plant when in flower is sometimes not more than $\frac{1}{2}$ in. high, and rarely more than $1\frac{1}{2}$ in. high; but as it grows in tufts and its lilac and pink fragrant flowers are numerous, it forms a pretty object on the rocks. *P. Stracheyi* is another attractive dwarf species, distinguished by its relatively large flowers rising from the intricately tufted prostrate stems. We had almost forgotten the charming *Primula mollis* (Bot. Mag., pl. 4798), with soft hairy leaves of the shape of those of *P. cortusoides*, and bright rosy flowers in two or three whorls.

W. B. HEMSLEY.

GARDENING FOR THE WEEK.

Greenhouse.

Tuberous Begonias.—In addition to the immense quantity of seedlings raised by those who grow them in that way there are a large number of fine named varieties now becoming plentiful, varying very much in their general character from the long, pointed-flowered, drooping forms to those of the very broad-petalled kinds, the flowers of which in some cases are almost erect. The former are generally much the more profuse in flowering and are more elegant. Taste in this, as in other matters, may vary, but there is no reason why a portion of each should not be grown. They are a very acceptable addition to greenhouse subjects, not only from the variety of bright as well as delicate colours which they afford, but also from their distinct habit and long continuance in bloom. But although their natural habit is to keep on flowering for months, their ability to make a full display for the greatest length of time of which they admit depends to a considerable extent upon sufficient nutriment at the roots. The pots in all cases must be large enough, proportionate to the size of the plants. I mention this particularly, as, through their free disposition to flower, beginning to bloom, as they do, almost as soon as the young plants are fairly in growth, it is not an unusual occurrence to see them allowed to remain in the comparatively small pots they begin to flower in, and so get completely exhausted before the season is over; but before they suffer in this manner they should be moved into others of a larger size. If the operation is carefully done without much disturbance of the roots they will receive little or no check, in which way they may be grown to a large size where required. Clear, weak manure water will also assist them, but will not make up the deficiency where the quantity of soil available for the roots is much too small. Where any particular variety is required to be increased, this can be done by cuttings as they strike freely, but the tubers formed do not in all cases grow. Some growers prefer to increase them by leaf cuttings, the tubers from which are smaller, but more disposed to go on afterwards. To keep them moderately bushy a good light position is necessary, as the shoots keep on extending as they bloom, and there is usually a reluctance to pinch out the points with a view to make them break back, for by so doing the flowers to a certain extent are for a time reduced in quantity.

Epiphyllum truncatum.—Through the amount of neglect that these plants will bear without causing their destruction, they sometimes during the busy season receive so little attention as to make a great deal of difference at the flowering time. The growth of those that were forced early will by this time be completed, and their general condition will be improved by exposing them to all the sun possible. The position that will suit them best, if such can be spared, is an empty pit with the lights well tilted, so that they can get plenty of air, in which way they will be neither liable to get saturated with wet by thunderstorms, nor to be blown over and broken by the wind when out-of-doors, an accident to which they are liable from their heads, when large, getting so heavy proportionate to the small pots they generally occupy; but where a place of this

description is not available they can be set out under a south wall, tying those that are got big and heavy to sticks to keep them from being blown about in the manner indicated.

Large-flowered Pelargoniums.—Those that bloomed the earliest should, as their flowers get over, be placed out-of-doors in the full sun to ripen their growth previous to heading back. It is much better not to delay this operation with the earliest-flowered examples longer than when the principal head of bloom gets shabby, as upon getting the shoots ripened and their being cut down at the proper season depends their ability to flower early next year; do not in the first instance, as is frequently practised, withhold water so as to cause the foliage to flag and die off through the deprivation of moisture, but as soon as the leaves droop give a little, gradually withholding it until growth is so checked that the foliage will retain an erect position even when the soil is quite dry.

Fancy Pelargoniums.—These plants, with their beautiful delicate colours, are now so little in favour that they are comparatively seldom met with; still, to those who like to grow some subjects of a naturally formal habit by way of contrast to others of more free and elegant outline, with a disposition to produce a complete sheet of flowers of the softest tints, it would be difficult to point to any plant that will supply the place of these Pelargoniums. In their case it is not necessary to allow the soil to get so dry through the absence of water as in that of the stronger-growing selfs, and if exposed out-of-doors care must be taken that they do not get too wet during heavy rains, as they are very impatient of over much moisture at the roots, the effect of which is generally the destruction of the fibres, and that kills the plants.

Mignonette.—Where large examples of this are grown for winter flowering they necessarily require a much longer time to grow than the small pots of late summer and autumn-sown Mignonette generally in use; but where there is an attempt to grow this plant to a considerable size, although comparatively easily managed, unless its wants are constantly attended to, the specimens will be more remarkable for size than condition, as evidenced by the spare, yellow-looking leaves and small spikes of bloom that weak, attenuated plants often display. Mignonette does not like much disturbance as regards the roots, and it is well to get the early-grown stock in sufficiently large pots before the season is too far advanced, so as to avoid any cramping at the roots, for should this occur it is a difficult matter to get them to move freely afterwards; use the soil fairly enriched and pot firmly, giving the plants a good light position, placing them far enough apart in the house or pit in which they are grown; stop and tie out the shoots as growth progresses. The ordinary bushy or pyramidal form will in most cases be found to look the best. The ugly wire trellises sometimes used for Mignonette where at the time of blooming it frequently happens that the wire is as conspicuous as the shoots of the plants, cannot be too much condemned. Look well to the undersides of the leaves for greenfly and red spider, which, if present, very quickly ruin the plants. I have found that water, to which has been added a handful of soot to the gallon, stirred up daily for a week, and the plants from time to time syringed with it, has an excellent effect in removing these insects, and also in rendering the foliage unpalatable to them. A little soot-water applied to the soil both assists growth and helps to keep the leaves of that dark green colour which adds so much to their appearance as well as to the requisite strength. A little more seed may with advantage now be put in to grow some plants on in small or medium-sized pots with a view to their blooming before those latest sown.

Cinerarias.—The earliest sown plants should not be kept longer out of their blooming pots than when they have got the soil in those they already occupy fairly filled with roots, for with these again any check will result in the destruction of their lower leaves, the loss of which not only destroys their appearance, but so far weakens them, that it is never possible to get plants which have thus suffered to produce anything like the head of flowers they otherwise would do. Keep the early and later-sown stocks where they can be slightly shaded from the sun during the hottest part of the day, particularly in the case of plants that are treated so as to make free vigorous growth, for where the foliage thus gets to a large size it is, as a matter of course, softer than when of a small stunted character; some well-decomposed leaf-mould added to the soil as well as thoroughly rotten manure assists free growth. Where grown from suckers, and the plants from which these are taken were, after blooming, as they ought to be, planted out, the suckers much sooner attain a good size, and they will in every way be easier managed than when kept in pots. As soon as any of the suckers are large enough take them off, allowing the small ones succeeding to remain longer. When so grown I have found it well not to remove them from the old plants until they have attained a good size and plenty of roots, plants from such invariably keeping the lead of those taken off whilst small and weak. Where means have been taken to grow seed as advised

earlier in the season from plants of the best habit and finest flowers, the seed as it ripens must be regularly gathered, otherwise if allowed to remain it will fall.

Primulas.—Plants raised from the earliest sowing will soon be ready for moving into their flowering pots—5 in. or 6 in. in diameter will be large enough; ram the soil tolerably hard, by which means I have found them less disposed to produce leaves with long weak stalks that have a tendency to damp off; in potting keep the plants well down, so as to avoid any bare stem betwixt the soil and lower leaves; frames or pits facing the north, with the plants raised close up to the glass, and thinly shaded during the middle of the day, will be found the right position to place them in, the result being growth which will not only afford a full complement of flowers, but which will be much less disposed to damp in the winter.

Chrysanthemums.—Although these plants from their natural free-flowering disposition will bloom almost under any treatment, still there is a wide difference between the display they make when well cared for and the meagre number of indifferently developed flowers forthcoming when their wants are not well attended to through the growing season. Growing, as is their nature, very fast both roots and tops, any insufficiency in nutriment, especially water, has a more injurious effect upon them than on other soft-wooded subjects that progress less rapidly. There is a good deal of difference in the treatment adopted by different growers, particularly in the use of manure water; some never give it until after the flowers are set, under the impression that the plants will bloom better by using ordinary water up to this stage. I have tried this method and also that of using manure water from the time the roots are getting fairly established in the blooming pots, giving nothing but manure water after they had arrived at that state, and I have found the latter treatment considerably the best, both by enabling them to retain their foliage, which makes them look so much better when in bloom, and also by the greater number of large, full-formed flowers which any given variety will produce in pots of similar size to those occupied by plants less liberally supplied with manure water. In the case of any species of plant where, through the use of continuous strong stimulants, there is a danger of the production of gross luxuriant foliage in place of flowers, it is much safer not to use manure water, except in limited quantities, until the bloom-buds are formed; but Chrysanthemums are so naturally free that nothing of this kind takes place. Yet it must be borne in mind where very liberal treatment of this sort is practised that it necessitates still more diligence in seeing that the soil never gets dry, for if this occurs the plants will suffer more than such as are less vigorous. Nothing tends more to preserve the foliage, to assist growth, and to minimise the drying influence of hot weather than keeping the pots plunged up to their rims; if coal ashes be available they are much the best, as they keep out worms, which, though not injuring them to the extent of more delicate-growing subjects, are still much better absent from the soil. The plants should now be treated in accordance with whatever form they are to be grown in; but for the usual decorative purposes on no account should I advise the stiff, flat training often seen resorted to for exhibition, and which, even in the case of plants so required, might with advantage as regards effect be dispensed with. The ordinary bushy form of tying, by the use of a few sticks keeping the branches sufficiently far apart to allow plenty of air to get to the whole, is the most generally useful; but some dwarf standards that are grown to a single stem from 2 ft. to 2½ ft. or 3 ft. in height, and stopped so as to cause them to branch freely, are particularly useful when the plants are to be used in rooms, halls, or corridors, and also for relieving the too-even surface which a stage full of these plants when in bloom often presents; for large conservatories and other structures still more might be done in this direction by confining some to single stems without stopping, keeping the shoots as they appear removed from the lower portion of the stems, simply allowing the head to branch out before the time of flowering. If the plants are at all affected with green fly the shoots should be repeatedly dipped in Tobacco water, which they will bear using stronger than most plants, until the insects are completely destroyed, to keep them clear from which the whole stock should be syringed freely with clean water every evening when the weather is dry. It is well not to grow a greater number than is required or there is time at command to give sufficient attention to, for, as with most other things, a better result may be attained with a limited number of plants well grown than larger quantities worse managed.

Cœlogyne cristata.—Where a sufficient stock of this is grown to give a succession of flowers through the winter the plants, as they finished their blooming, will have been gradually introduced into heat; by this means the early and later completion of growth will favour the successional production of flowers much easier, and be more conducive to the health of the plants than by retarding alone when growth is complete. This Cœlogyne delights through the grow-

ing season in plenty of moisture and plenty of light, but not too much heat.

East Indian House.—Most of the plants here will now be in active growth; the position and description of the house in which they are cultivated should always be taken into account in determining the temperature to be kept up, the lighter the house the more heat the plants will bear without producing weak, soft growth; 65° by night when the weather is not so hot as to cause the thermometer to range higher than this will even at this season of the year be more conducive to continued health than when they are kept warmer. Orchids are naturally slow-growing subjects, and young cultivators are frequently so desirous to get their plants on in size that they urge them on by heat and moisture and insufficient air, which for the time being results in an apparent gain through the size they attain in a short time, but is quite the reverse of a permanent advantage, for the large leaves so produced are deceptive, as they sooner decay and fall off, leaving the tall-growing non-bulb forming section, making it naked and bare at the bottom. Vandas, Aerides, Angreæums, and Saccolabiums, which are the principal representatives of this habit of growth generally, owe their unsightly appearance to this cause, and when the flowering abilities of plants so treated are taken into account, in this they are found equally wanting. Plants grown slower, with shorter but very much thicker and stouter foliage, will produce flower-spikes from the base of almost every leaf, whereas the examples grown under a system that induces a softer, weaker texture will often not bear more than half the number. Regulate the day temperature in accordance with the weather; when it is cool and dull 75° by the use of fire-heat will be enough, whilst with a clear sky and a high outside temperature 85° or 90° will be rather beneficial than otherwise, giving air each day in accordance with the state of the weather.

Dendrobiums.—Most of the warmest sections of these should now be in full growth; the thin-leaved kinds, like *D. Devonianum*, are very susceptible to the attacks of yellow thrips, and if this little pest exists at all in the house it is sure to find them; it is equally injurious to the young leaves of *Phalenopsis*, and also affects Vandas, Aerides, Saccolabiums, and others, the leaf development of which takes place in the manner of these; but if syringing is practised daily at the time of closing the house, not only does it check the increase of the insects, but it prevents their doing injury, as they cannot endure the presence of water. This is the only effectual method I ever found of dealing with them, as many Orchids do not like Tobacco smoke, or will bear it in anything like a volume dense enough to kill this species of thrip, which gets down as low as the unexpanded leaves will permit, where there is enough air to enable it to live beyond the reach of the Tobacco fumes.—T. BAINES.

Flower Garden.

The present, in ordinary seasons, is comparatively a leisure time; but, though planting is done, such will not be the case this year, if neatness be maintained, for weeds grow so fast, both on walks, beds, and borders, and the lawn and edgings require such constant cutting, that leisure is out of the question, and resolute energy must take its place in order to keep anything like abreast of the work required to be done. Another such protracted cold, wet season, and the modern system of flower gardening must collapse, at least so far as the use of tender plants is concerned, for up to the present time they have grown beautifully less since being transferred to the open air, and however favourable the weather may now become, the season is too far advanced for them to attain perfection ere the time arrives for their return to winter quarters. Pelargoniums, Calceolarias, Petunias, Lobelias, Violas, and Verbenas are about the only plants that are growing satisfactorily, and all these should be made the most of by pegging them down in their proper positions and frequently removing all seed vessels and bad flowers. Keep the soil stirred in all the beds; heavy rains have so hardened the surface that it is impossible for the little sun-heat which we get to penetrate it. In mixed herbaceous borders Pyrethrums now make a good display. Why is it these are not more generally grown? They do well in any soil, are perfectly hardy, there are amongst them an immense number of varieties, and the flowers are brilliant and lasting. Their flower-stems now require supports, and the same may be said in reference to Potentillas, Delphiniums, and the earlier Phloxes. Brier stocks are now quite sufficiently advanced for budding, but the buds are late, scarcely a flower having yet been cut from the open border—and, as a rule, the best buds are those from the shoots that have been denuded of their flowers; as soon as these can be had, budding should be performed. This will, no doubt, prove a favourable season for that operation, as the excessive rainfall will conduce to the easier working of the bark, and the moist atmosphere to the quicker and more certain starting of the buds. The first bloom of climbing Roses on south and west walls will now be nearly over, and, by way of assisting the plants to produce a good second supply of bloom,

remove all the old flower-stems and useless spray at once, and well soak with manure water. The fact of the ground being wet through recent rains need not be taken into account; such a condition will cause a quicker utilisation of the manure, and so prove beneficial rather than otherwise. Box edgings should now be clipped, and Privet, Holly, Yew, and other evergreen hedges be trimmed into the desired form. All Coniferous shrubs are making the most luxuriant growth, and many of them, particularly young specimens, would well repay any attention that can be bestowed on them in the way of stopping any shoots that are growing more vigorously than others on the same tree, so as to balance the growth and render the tree symmetrical. Azaleas and Rhododendrons should be deprived of their seed-pods, and the grafted kinds should be kept free from the suckers which the stocks are producing so freely this season.—W. W.

Auriculas.—At this season of the year Auriculas are sometimes neglected, and that is just what they cannot endure. Let the plants stand in the sun until they become dessicated from want of water at the roots, and a good bloom next year need not be looked for. The north side of a hedge or low wall is the best place for them now, and when the sun gets round about 2 o'clock p.m. it is necessary to shade until after 4 o'clock if the weather is sultry. It is not well to give too much water; one can easily err in this direction, and more so now than at an earlier date. Remove dead and decaying leaves, and keep everything about the frames clean. Still pot on and propagate offsets, placing the latter under close bell-glasses or hand-lights until they are established; the newly-potted plants should also be placed in a close frame for a few days until they have become established.

Carnations and Picotees.—See that the flower-stems of these are securely fastened to sticks with matting, and that all superfluous flower-buds are removed. The bloom will be later this year than usual, but the weather being favourable, an abundant harvest may be the result. Plants in beds are rather later than those in pots, but in both cases they are looking strong and healthy, and must not suffer from lack of moisture at the roots, especially those in pots. Continue to put in the small growths that are not likely to be useful as layers in the same way as recommended in the case of Pinks.

Hollyhocks.—As these progress in growth side shoots are formed, which must be removed as soon as they are strong enough to form eyes for purposes of propagation. The leaves nearest the stem have eyes at their base that under proper treatment would produce a stem; those further removed have flower-buds at their axils. The leaf-buds should be taken off with 1 in. of the stem attached and inserted in fine soil in pots. If the pots are placed in a close frame the young eyes speedily start into growth and form plants in a few weeks. If fine spikes be desired, it is essential that the side growths be taken off, even if the eyes are not wanted to increase the stock. Give manure water to the roots or place rich manure round them and water through that.

Gladioli.—The hoe must be kept at work between the rows of these until every weed is destroyed. There has been no lack of moisture in the soil as yet, but as soon as dry weather sets in give a good soaking and then mulch, in order to retain moisture. If the weather continues dry and hot it may be necessary to water freely twice a week. Sticks must also be placed to the flower-stems as soon as they can be seen. Look out also for a green caterpillar that insinuates itself underneath the flower-bracts before the flower-buds can be seen, and quite destroys the symmetry of the spikes.

Tulips.—The lateness of the season is evidenced by the blooming of the Tulips this year. One of the largest growers writes me from Manchester this week saying that he could cut a fine box of blooms on July 1, a state of things quite unprecedented in all his experience of more than a quarter of a century. In ordinary seasons the bulbs are taken up between the 24th of June and the 1st of July. Notwithstanding, however, the season being so late, the bloom has been good. Our own bulbs have been taken up and stored away until planting time, and the beds in which they grew have been planted with Asters.

Hardy Cyripediums.—Except the beautiful *C. irapeanum*, these are all now out of flower, but they still require the same attention that they have hitherto had, that is, syringing the leaves twice a day and seeing that the plants do not suffer from want of water at the roots. The longer the leaves are kept in a green and healthy state so much the better is it for the permanent well-being of the plants. There are a few of the scarcer species still difficult to manage, such as *C. aretinum* (the Ram's Horn Lady's Slipper), *C. japonicum*, and *C. irapeanum*. If any readers of THE GARDEN have been successful in growing any of the above, information as to the treatment which they have received would be very useful.—J. DOUGLAS.

Hardy Fruit.

The continued unfavourable weather which we are having is causing fruit prospects to grow every day gloomier in this district. Apples and Pears are dropping wholesale; Apricot branches are dying off more largely than usual; Peaches are badly attacked with aphides, and the crop is sure to suffer somewhat through the strong and oft-repeated measures necessary to eradicate them; Strawberries are a heavy crop, but much of the fruit is rotting before it is half grown; Morello Cherries and Currants are about the only fruits that continue uninjured. Still, we have not yet lost hope, for with a change to hot sunny weather the fruit crop would yet be an average one. Incessant warfare must still be waged in the case of aphides. Soap-suds or clear water applied with force are the best antidotes, but they require frequent repetition, and before washing and dressing the trees all the curled and blistered leaves, and the worst effected and superfluous shoots should be removed, and the final tying in of shoots should be delayed until the trees are quite clean and healthy. Pears are now sufficiently advanced to have all the breast-wood cut away at about, say, four joints from the main stem; if cut closer they are apt to again break into strong wood growth rather than form fruit-buds. The excessive rainfall of the present season will doubtless contribute to the production of an unusual quantity of wood growth, and extra stopping will be necessary not only to induce the formation of fruit-buds, but to assist the ripening of the new growth by the freest possible exposure to light. Currant and Gooseberry bushes have made more growth than I ever remember them to have done in any former season, and thinning it out will therefore be a matter of necessity. Summer pruning of these has many advantages, not the least being that the trees can be trimmed into any shape desired, and the fruit at the same time be exposed to the influences of the atmosphere. Currants and Cherries are changing colour, and will require protection from birds; any that are to be reserved for a considerable time should be cleared of aphides and be closely covered up with hexagon netting. Ripe Strawberries often suffer more from mice and slugs than from birds, and it will be desirable to at once adopt precautionary measures against these; trap the former with the common figure of 4 trap, and the latter by means of baits of bran. To all appearances Raspberries will be a very heavy crop; they evidently enjoy the rain, as they are not only full of fruit, but growing vigorously. If the stools have not yet been thinned they should at once be reduced to four each, or if thickly together three will be ample. Mulch the ground about them with good rotten manure, for a change of drought would soon have a deteriorating effect.—W. W.

Parks and Open Spaces.

Grass has grown vigorously during the past month, and is still continuing to do so, necessitating frequent mowing and rolling to keep it in good condition; now is the time to form a good sward, and the closer and oftener it is cut and rolled the better will the bottom be, and the more effectually will it withstand the ensuing winter, should it be severe; few things add more to the beauty of parks and open spaces than good and well-kept Grass, and the work is so simple that it should be by no means neglected. The continuous moist weather has also been favourable for eradicating weeds. On large open spaces where it is not practicable to maintain the Grass in a lawn-like condition, it should be mown at least two or three times during the growing season, or serious injury will result to the turf, the coarser Grasses destroying the finer varieties so essential to the formation of a good and durable sward. Where the soil is gravelly and poor a light dressing of artificial manure will be found beneficial; in damp soils Moss may be destroyed by sweeping with Birch brooms half worn out, rolling the ground the following day.

During wet weather it is almost impossible to maintain plantations and borders free from weeds; in those instances where they are much over-run the best plan will be to lightly dig them over, taking care not to injure the roots of trees, shrubs, or herbaceous plants; where this cannot be done the weeds must be hoed up and raked off or hand-picked. Overgrown shrubs may be pruned back to within proper limits and all herbaceous plants requiring it should have supports. Annuals must be thinned out, and all subjects in the way of Asters, Stocks, Helichrysums, &c., still in store should be planted out in favourable weather without delay. Seeds of perennials may also be freely sown for stock next year or for spring bedding.

Trees recently planted will require great attention at this season, especially those standing singly as in avenues, in order to secure them against damage during high winds; the heads having become heavy in consequence of the luxuriant foliage caused by the moist weather, it may indeed be necessary to thin out some of the superabundant wood to allow the wind to pass freely among the branches; this is not generally advisable, however, if it can be avoided, the best method being to stake them firmly or make them secure with three stays of cord or wire placed triangularly; attention should also be given to the ties to prevent the strings cutting into the trees.

Climbers and creepers must not be neglected at this season, nailing or tying in those shoots which are the strongest and in the best positions, cutting out those which may not be required. This work should be carefully attended to, particularly in the case of those growing freely at the top, as Virginian Creepers, Clematises, &c.; no wall or other unsightly structure should be bare at this period of the year, and edgings of Ivy, Euonymus, and other small shrubs should also be thinned out, cleaned, pegged down, clipped, and neatly arranged as may be necessary.

Corrosive acids or salt may be used during July for the purpose of destroying vegetation on roads and walks, choosing hot, dry weather for its application, whilst wet will be preferable for handpicking—the most desirable mode of getting rid of weeds when they are not in any great quantity; use the roller as often as possible after rain, and examine gullies to ensure the water running off rapidly during heavy storms.—C. DENNIS, *Southwark Park*.

TREES, SHRUBS, AND WOODLANDS.

PRUNING FOREST TREES.

GREAT difference of opinion prevails as to the necessity for pruning forest trees and the season at which such operations should be carried out. But undoubtedly the weight of authority is favourable to early summer pruning. The month of June is strongly recommended, because at that time the wounds heal up much quicker than during July or August, when the motion of the sap becomes slower. And it should be a standing rule with the pruner that no wound remain exposed to the action of the atmosphere for a longer period than one year. If the aim of the owner of woodlands was confined to the production of the greatest amount of wood upon a given area in the shortest possible time, it is questionable whether pruning of any kind should be executed; for every branch cut away from a tree lessens the quantity of foliage presented to the action of the sun and the atmosphere, and therefore decreases the absorption of carbonic acid gas and the formation of wood, of which carbon is the main constituent. But where the object in view is the growth of the maximum of straight, lengthy, clean, and sound timber, thinning and pruning must commence soon after planting and continue until the trees attain considerable proportions. By thick planting, early thinning, and careful stopping of rambling shoots or rival leaders, pruning will seldom be necessary except in the removal of injured branches. But as the growth of a tree is slow, and he who plants seldom lives to train up his trees to maturity, pruning in an advanced stage of their growth is often necessary in order to lessen the evils resulting from early neglect.

Trees differ so much in habit and in their rapidity of growth, and are so largely dependent upon the soil and situation in which they are placed, that it is impossible to lay down any precise rules for their management in this respect. Those intended to form large and good timber should never at any stage of their growth be suffered to become too much crowded, nor overtopped or whipped by their nurses; and as they rise they should be allowed sufficient space to enable them to develop well-proportioned heads, equal in length to from one-third to one-half the height of the entire tree. It should also be borne in mind that by preserving a complete canopy of foliage overhead the moisture is retained in the soil, the stems rise rapidly, and the formation of side branches is retained.

The advantages of early pruning are nowhere more observable than in young plantations of Oak and Spanish Chestnut. Two years after planting it is no uncommon occurrence to find a considerable number of the young trees hide-bound and becoming distorted in their growth. Such, if left to themselves, seldom or never attain to the size of timber trees. But if cut over with a clean section within 2 in. of the ground they will push forward vigorously during the following spring and summer. By rubbing off all but two of the strongest shoots in June or July, and allowing these to grow on together until the following March, and then cutting out the weaker of the two, and afterwards keeping the other single upon the stub, a vigorous growth may be insured, which will, in a few years, far exceed that of the uncut trees. A most remarkable instance of this is mentioned by Forsyth, who the second year after planting a bed of Oaks headed down one-half and left the other to grow naturally. In giving an account of their progress a few years afterwards, he states that one of the plants thus cut over was 18 ft. high and 15 in. in circumference at 6 in. from the ground, while the largest of the uncut ones was only 5½ ft. high and about 4 in. in circumference.

But, while recommending the early and careful pruning of forest trees, I would not be considered as an advocate of the excessive lopping and pruning introduced by Pontey, and so ruthlessly carried on by his successors, who looked upon and spoke of the branches of

trees as being merely “robbers of the stems.” To produce lengthy timber every branch which threatens to rival the leader should be shortened. By adopting this method instead of cutting away the branch entirely the trunk is strengthened by the sap being detained in its descent. Timely attention will obviate the necessity for heavy prunings at any stage of a tree's growth. The pruner should, however, be conversant with vegetable physiology, otherwise that twilight of uncertainty in which all his operations are performed may lead him to commit grave errors. In close plantations the destruction of the lower branches is eventually caused by the exclusion of light, but the result is generally unsoundness of stem. This is found to be the case so extensively in Canada and other large timber-producing countries, that a very small proportion of the trees grown under such circumstances are fit for exportation.

The whole art of pruning and training timber centres is the adoption of a proper mean between the two extremes of cutting away the branches of a tree so as to give it the appearance of a mere May-pole in the one case and that of a dense spreading bush in the other. A severe mutilation of the head of any tree must for a long time paralyse the action of its roots, and on this account the heavy pruning of neglected trees, if undertaken at all, should be extended over two or three seasons. Deciduous trees will require the most careful training in order to produce sound timber. As considerable difficulty is experienced in pruning trees of a resinous kind without injury to their growth, it becomes the more necessary to plant and rear them in close order. The lower branches under these circumstances are soon killed back, and may be removed so that the longitudinal structure of the bole is but little injured, as, by the early destruction of the laterals, the superincumbent layers of wood are entirely free from knots. Thus it happens that Fir timber grown in close plantations, where the early removal of the dead, bolt-like insertions left by the dead branches is attended to, becomes the most valuable, while single trees, from their coarseness of grain and abundance of large knots, are almost worthless to the builder. It is also found that Ash grown in close plantations becomes much tougher and clearer in the grain.

In exposed situations both the pruning and the thinning of trees should be much lighter around those margins of plantations which face the prevailing high winds of the district. By too close packing it often happens that only the face of the very outermost trees are clothed with foliage, so that any injury to one of these admits the destructive winds. This may be guarded against by a judicious early thinning of such margins, so as to secure a belt of low-branched trees.

A. J. BURROWS.

Pluckley, Kent.

WOODLAND WORK FOR JULY.

Now that the early summer operations connected with the stripping and harvesting of bark, the removal of timber and other produce, the repairs of hedges and stopping of clearance roads have been brought to a close, the forester should look well through his plantations and carefully prune away all injured branches, and afterwards remove dead wood and all strong undergrowths of weeds. During the present month considerable progress should also be made with fencing, draining, trenching, and hole digging. The season for which there is but little special work should be taken advantage of to forward the heavier operations of the year. The cartage of materials for future use may, during the dry summer weather, be done with the minimum of labour for the horses employed; and upon very heavy clays the short season that intervenes between this and the time for planting at the end of September or beginning of October will be quite little enough for the proper sweetening and amelioration of the soil thrown out. Whenever a new plantation is to be made upon the site of an old wood all vestiges of the former crop should be removed, and a thorough trenching or deep holing will prove the best preparation.

Hedgerows will require considerable attention this month. Clear all weeds from their bases, pare the sides well in with the switching bill, and reduce their tops to the narrowest limits consistent with proper strength for the situations in which they stand. Fences or screens of Bay, Laurel, Turkey Oak, Box, Holly, and Yew may be carefully trimmed with the pruning knife. Towards the end of the month, should the weather be showery, plant out Holly and other evergreen trees. A tolerably large ball and a copious watering at the time of planting will generally insure their safety.

Where the pruning of forest trees is carried on considerable progress should by this time be made with the work. The youngest and most flourishing should be left till the last. The dead and decaying branches may be removed from Fir trees, and if this operation be performed early, sound and serviceable timber will be produced.

Keep down weeds in the nursery, turn seeds of various kinds in the pits, thin out beds of young plants, bud the Horse Chestnut,

Hawthorn, &c., keep the heads of grafted stocks free from side shoots, and prune up young trees for autumn transplanting. Collect all available materials for composts and turn those formed early in the spring. Add gypsum, chalk, lime, and shells where they can be obtained.

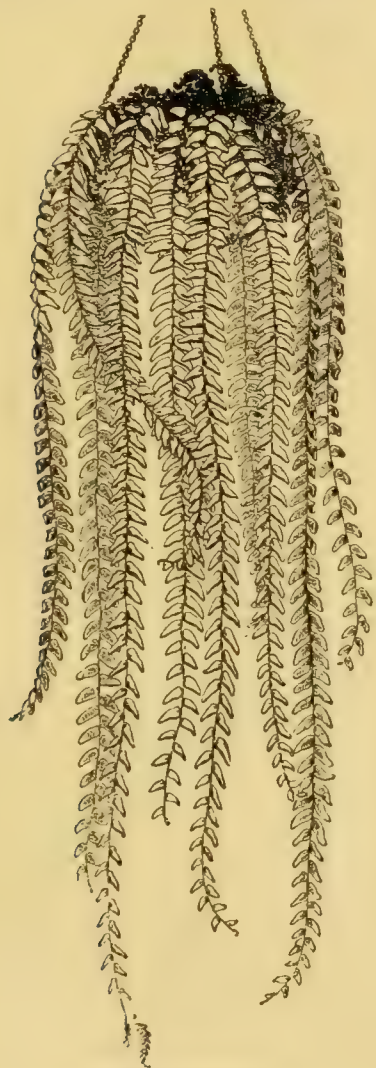
A. J. BURROWS.

Pluckley, Kent.

THE INDOOR GARDEN.

ASPLENIUM LONGISSIMUM.

THE genus *Asplenium* contains many beautiful species all, with few exceptions, worthy of cultivation, and, being found in all parts of



Asplenium longissimum.

the world where Ferns grow, they are adapted for the hardy, temperate, and tropical Fernery. Some, from their trailing habit, make desirable basket plants, as will be seen by a glance at the accompanying illustration of *A. longissimum*, an elegant species with fronds measuring from 3 ft. to 6 ft. and sometimes 9 ft. in length. Its bright ebony rachises and olive-green shining pinnæ also add greatly to its beauty. It is a native of the Indian Archipelago, and was introduced into this country some years ago by Messrs. Veitch & Son, of Chelsea. The most suitable baskets for it are plain hemispherical wire ones, well painted, and the soil should consist of three parts turfy peat, one part light loam, and one part sand. Before inserting the plants the sides of the baskets should be lined with a layer of peat, and a few large potsherds should be placed at the bottom for drainage, an important point even in the case of baskets. The spaces between

the roots and sides of the baskets should be made up of the above compost mixed with pieces of charcoal or potsherds, in order to allow the air to permeate the soil. A few rooted cuttings of *Ficus minima* or *F. stipulata* would, if inserted in the sides and pegged down, hide the soil from view. *Panicum variegatum*, *Tradescantia zebrina*, *Selaginella Kraussiana*, *S. uncinata*, and *S. Galeotti* would answer the same purpose, and are, moreover, themselves attractive. The spores of *A. longissimum* rarely germinate, but it can be propagated freely from the bulblets, which are produced at the end of almost every frond; these grow rapidly, and in about three years make fine specimens. Several allied species are also adapted for basket culture, such as the graceful *A. furcatum*, which grows plentifully on trees in the warmer parts of both the Old and New World, and which has a very ornamental appearance; *A. flaccidum*, a fine species with deeply-cut, drooping fronds of a succulent character, also makes a good basket plant, as does likewise *A. nitens*, though smaller than the preceding; *A. rhizophorum* and its numerous varieties make desirable specimens, especially the variety called *rachirhizon*, the fronds of which taper into long whip-like appendages, the whole frond reaching some 2 ft. in length. *A. lineatum*, a native of Mauritius, with fronds from 2 ft. to 3 ft. long, cut into numerous linear segments, makes an excellent cool conservatory plant.

C. M.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Ouvirandra fenestralis and Berneriana.—Amongst the many varied forms of plant life which inhabit our glass structures few will be found so capable of exciting the wonder and curiosity of the uninitiated as these two species of Lattice Plants. Unfortunately, they appear to be somewhat capricious in their likings, flourishing in a few favoured places with but little care, whilst in others the utmost attention fails in inducing them to grow satisfactorily. The Lattice Plants are seen to the best advantage when growing in a clear glass vessel well exposed to the light. The peculiar structure of the leaves is then more clearly defined, and a well-developed specimen thus grown and placed in a conspicuous position is no mean ornament to a glass structure. At Messrs. Jackson & Sons' nursery at Kingston-on-Thames both of the above-named species grew, and probably do so now, like weeds. They were planted out in inverted clothes in a compost of lumpy peat, and, with the exception of occasionally washing the glass and pouring in a can of fresh water now and then, no particular care was expended on them. Old stools, young plants, and seedlings grew alike with equal freedom. They were placed in a Vanda house close up to the roof. *Ouvirandra Berneriana* is the stronger growing species of the two, and at Messrs. Jackson's flowered and seeded freely, the seed sowing itself and germinating abundantly. A considerable number of young plants were raised, but many of them perished when removed to other establishments, although treated in precisely the same manner. Either rain or Thames water was used for them, and possibly greater success would be attained in their culture if only spring or rain-water was employed. Where the Lattice Plant does succeed it certainly enhances the value and interest of even the most choice collection of plants, and it is worthy of all the pains and any reasonable expense that may be incurred in its culture. *O. Berneriana* is, I think, the most easily grown, but the network of the leaves is not so strongly marked as is the case with those of *O. fenestralis*. The latter species has a most charming and graceful appearance when growing freely in clear limpid water, and is sure to obtain from visitors the greatest share of attention and admiration.—J. CORNHILL, *Byfleet*.

Hovea Celsi Grown as a Standard.—Plants of this beautiful blue-flowered New Holland shrub, in 6-in. and 8-in. pots, with clear stems, from 18 in. to 24 in. in height, crowned with a well-developed head of foliage, and covered with bloom, produce a fine effect either when forming the centre of a group of flowering and fine foliaged plants, or when so arranged that the head of each plant is brought out slightly from the general arrangement. There are few plants that gain in beauty by being grown as standards. *Hovea Celsi*, however, appears to much greater advantage when thus treated than when the ordinary mode of culture is followed. Such, at least, was the conclusion I arrived at on seeing a considerable number of standard specimens at Mr. Laing's nursery at Twickenham. The plants were in various sized pots, all equally healthy and full of bloom, and they struck me as being highly ornamental, but at the same time as affording a somewhat novel feature in conservatory decoration.—J. C. B.

Dendrobium McCarthiae.—This is certainly one of the most beautiful of Dendrobies, and one with which I have been fairly successful. I have grown a plant of it for five or six years in a Teak basket suspended from the roof of a warm Cattleya house. The first

year in which the plant was placed in the basket, the roots being merely covered with clean potsherds, it made good growth and plenty of roots, having been freely watered all through the growing season. When it started into growth the next year a little Sphagnum was placed over the crocks and freely watered. The plant flowered from the last season's growth, and it has done so more or less every year since, about midsummer. I fancy we have not kept the roots dry enough, nor placed the plants in a house having a sufficiently low temperature during winter.—J. DOUGLAS.

Odontoglossum cirrhosum.—The first living plants of this Orchid were introduced in 1875, and in the following year a plant of it was exhibited in flower at South Kensington, and obtained a first-class certificate. Shortly after this it fetched very high prices, but the many thousands of it that have since been imported have brought it within the reach of all lovers of Orchids. During the years 1877-78 some very fine spikes of this species were produced, but in almost every case they were far too long to be pretty. Now, however, it seems to have become inured to artificial treatment, and the result is shorter and stouter spikes, well set with fine blooms, which not only look well on the plant, but prove very useful in a cut state. The variety called Klabochorum, in compliment to the collector, F. Klabocher, has larger and better marked flowers than those of the species *O. cirrhosum*, of which the annexed is an illustration kindly furnished by Messrs. Veitch. It should be potted in equal parts of peat and Sphagnum, and the pot should be two-thirds full of drainage. It should be placed in a light position in a cool house, where it will get abundance of fresh air. It succeeds admirably suspended near the opening of a roof ventilator. It should have frequent and liberal supplies of water during the growing season. From the time when the bulb is fully developed until the spike is a few inches high, little water must be given; but at no time should this plant be allowed to get thoroughly dry, or it will lose both leaves and roots.—J. C. SEYERS, *Burford Lodge, Dorking.*

Gloxinias.—Visiting the gardens at Redlees, Isleworth, for the purpose of inspecting the magnificent display of herbaceous Calceolarias then in full bloom, I was much struck with a quantity of erect-flowering seedling Gloxinias then blooming for the first time, all showing grand flowers, some of great beauty and perfection of form. These, said Mr. James, are so far in advance of our named kinds that I have put them on one side altogether, and shall keep my stock supplied in future by means of seedlings. The seed of this lot came from Messrs. Sutton, of Reading, but the marvellously fine seedlings shown by Messrs. Veitch, Wills, Kinghorn, and others show that the days of named kinds are passed. The Gloxinia is with heat easily raised and grown, and as a decorative flower is, for its size, probably unrivalled.—A. D.

Mr. Wrigley's Orchids.—This important collection was disposed of at Stevens' last week, and realised upwards of £2300. The finest specimens of the rarer kinds fetched high prices. *Lycaste Skinneri alba*, two plants, brought £36 and £17 respectively; *Cypripedium Stonei*, £22; *Anguloa Clowesi*, £23; several plants of *Masdevallia Lindenii*, £26; *M. Veitchiana*, £15; *M. Lindenii*, £26; a fine plant of *Vanda suavis*, £16; *V. tricolor*, £16; *Odontoglossum vexillarium* from £15; *O. pulchellum*, £11; *Cypripedium caudatum*, £8; *Calanthe veratrifolia*, £11; *Masdevallia tovariensis*, £9; *Lælia purpurata* £8; *Celogyne cristata*, £8; *Aerides Fieldingi*, £9; *Odontoglossum vexillarium roseum*, £7; *Dendrobium Schrederi*, £8; *Cattleya aurea*, £12; *Cypripedium levigatum*, £10; *Saccolabium præmorsum*, £12; a fine *Anthurium Scherzerianum* realised £29.

Effects of the Winter at Newry.—The past winter has been productive of many surprises; for instance, *Erodium Manescavi* planted in a wet bed only 2 in. or 3 in. above the water, has wintered safely, and is now in a vigorous condition and in full flower. So also in the same spot is *Francoa ramosa*, which is quite safe and coming up most vigorously, whereas the same plant on raised rockwork only a few feet distant is quite killed, and in both positions *Saxifraga sarmatosa* is growing freely. *Lobelia fulgens*, close to the side of the water, and, in fact, partly in it, is safe, whereas everywhere in ordinary soils and positions it is killed. *Mimulus cardinalis*, close to the side and in the water, is in the most vigorous health and quite 2 ft. high; so is *Mimulus cupreus* which is in full flower, and which has some of its shoots trailing in the water, though, curiously enough, *Epilobium hirsutum variegatum* in the same bed is dead. *Spiræa palmata*, planted just 4 in. above the water, and, of course, with its roots in it, is more than 2 ft. high; it has splendid foliage, and promises to produce fine heads of bloom. Some of the variegated *Funkias* have proved to be fine waterside plants; masses of *F. undulata*, variegata, alba, marginata, japonica, aurea, glauca, &c., with their roots in the water, are now truly beautiful. *Sarracenia purpurea*, planted on a bog bed raised only about 2 in. above the water, and which was a solid mass of ice for months, is now (several plants) coming into flower, proving clearly its hardiness.—T. SMITH.

THE FRUIT GARDEN.

EARLY RIPENING VARIETIES OF FRUITS.

WHERE there is a demand for ripe fruits as early in the year as it is possible to have them, it is of the greatest importance to make such selections of Pines, Grapes, Peaches, Nectarines, Strawberries, &c., as not only bear forcing well by artificial means from midwinter onwards, but which also come the most rapidly to a state of ripeness. In both these respects there are very marked differences in the different varieties of these fruits. No experienced forcer who wanted to present new Grapes at table in April or May would select for this purpose the Muscat of Alexandria, although it has probably more good qualities than any other white or even black Grape. Nor would the Barrington or late Admirable Peaches be selected, though these are noble varieties in their proper place. Of Strawberries, no one would select British Queen for ripening early in March, although it is probably yet the finest late or midseason Strawberry in existence. In their respective classes these are all first-class fruits, but they are totally unfitted for very early forcing.

Among Grapes, Black Hamburgh has yet no rival for early forcing as a black variety; Buckland Sweetwater and Foster's Seedling are popular white sorts for early work, and no doubt they bear forcing well and ripen early; but it seems strange that such very superior flavoured Grapes as the white and grizzly Fontignans are so seldom met with in early Vineries. They are both Grapes that stand forcing remarkably well, are sure croppers, and come early to maturity. Indeed, for our own choice we much prefer Royal Muscadine, and one or two other varieties of Muscadine, for flavour to either Buckland Sweetwater or Foster's Seedling. Where mere appearance is appreciated in preference to flavour, the two last-named may perhaps be preferable.

The popular early forcing Peaches have been, and are still to a great extent, Royal George, Abec, Early York, Stirling Castle, &c. No doubt these varieties have answered the purpose of early forcers well, and they are good when ripe, and until recently have been found among the quickest to arrive at a state of maturity. They are, however, completely out-distanced as regards earliness by such varieties as Early Louisa, Early Beatrice, Hale's Early, and Early Rivers. But we fear the two first-named are too small ever to become so acceptable as they otherwise would be. Hale's Early is a large, finely-flavoured, handsome Peach. On these points there cannot be objections raised against it. Its earliness is very remarkable. We have before us a ripe handsome fruit of it from a Peach-house at Chatsworth. From the warmest end of the same house we have, for comparison, a fruit of Elruge Nectarine, and from the middle tree of the house a fruit of Royal George Peach. The difference is more remarkable than in any similar comparison we have ever seen. Neither the Peach nor Nectarine from the warmest end of the house have finished the stoning period, while Hale's Early Peach is perfectly ripe, juicy, and luscious. The valuable qualities of Hale's Early Peach for early forcing and ripening is thus most strikingly manifested compared with one of the most popular early Peaches of the older class. We believe that Early Rivers is a Peach equally early, rich in flavour, and of large size. There can be no doubt that, whatever may be the fate of the lesser sized early Peaches, Early Rivers and Hale's Early will take a prominent position in the supply of early Peaches.

What is now wanted to match these two early Peaches is a Nectarine that will ripen nearly about the same time. The Elruge has long held a first position as a fine forcing Nectarine, and most deservedly so. It is a fine high-coloured sort and a sure cropper. Hunt's Tawny is, of course, an earlier, but otherwise not so good a Nectarine. It strikes us from what we have seen of Lord Napier that it must ultimately take a high position as an early Nectarine. It ripens about a fortnight before Hunt's Tawny, and is perhaps the largest Nectarine in existence; it is also excellent in quality; but how it will stand forcing from the end of November onwards through the winter has not, so far as we are aware, been yet well tested. As a midseason fruit it is one of the freest, and it is reasonable to suppose that it will also succeed for winter forcing.

In all seasons early ripening varieties of fruits are of much importance, and they have perhaps never been more so than this year, when early forcing has been found more of an uphill business than it has been for perhaps half a century.—*The Gardener.*

Peach Early Amsden.—This, brought on in a Vinery in which the Grapes are only fairly set, was quite ripe on the 17th of June, whereas Early Beatrice will require three or four days to finish properly; the latter, however, is much the larger and finer-looking of the two, the former being medium-sized, though high coloured.—T. SMITH, *Newry.*

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Effect of Frost on Vines.—The way in which frost destroys or injures vegetation is not fully understood, even by those who have made the subject one of special study; nor is this to be wondered at, considering the many instances that from time to time occur which appear inexplicable. One of the most remarkable which I recollect came recently under my notice in a market garden near one of the northern manufacturing towns. One of a number of Vineries was started so as to have the Grapes ripe in August. It was a large span-roofed structure, standing with its ends east and west, and contained eighteen Black Hamburgh Vines planted out on the south side, and introduced to the house in the ordinary way above the wall-plate; the stems were protected with thick straw ropes, as is generally done. A gutter under the eaves, too, carried off the roof-water

severed from the lower part. The Vines have been planted eighteen years, are very strong, and all along have borne heavy crops. The shoots this season, particularly on the injured ones, are extremely thick and stout, just such as might be expected from good Vines that had been cut back as far as the point to which these have been killed down, and had all their strength concentrated in the production of a limited number of shoots. I had an opportunity of examining these Vines closely, but failed to find the slightest clue to the reason why they have been thus partially killed back. Had they been killed right out, or down to the ground, the matter would have been intelligible; or had the upper part of the stems from the point where they entered the house been placed under dissimilar conditions, or the frost been able to reach them inside in any way, then there would have been little at all remarkable; but to see the tops, where wholly out of the reach of the frost, destroyed down to a certain point, and



Odontoglossum cirrhozum.

to a drain, which conveyed it away. The house was filled with bedding plants, and, as a matter of course, fires were kept in continuously to exclude the frost, which was effectually done, not so much as a leaf of these being injured. The Vines were pruned as soon as their leaves were off, and were allowed to remain slung up to the rafters right across the house, of which they occupied both sides of the span. The internal warmth, as usual in such cases, caused the ice and snow accumulated from time to time on the roof to melt and run down into the spout, which soon got full of ice, and, running over, the water fell on the straw-covered stems of the Vines, until the whole of those occupying the centre of the house were covered with a frozen sheet like a huge icicle. Nothing further was noticed. The frost went, the bedding plants were cleared out, and the Vines were started. Those at each end of the house that had escaped the icy coat broke, as usual, and those in the centre broke similarly to about half-way up the south side of the roof, some a little below that, others above, but beyond they are as dead as if they had been six months

the lower part as strong and vigorous as can be, is indeed a mystery. They were showing plenty of fruit. I understand that there is another similar case in the same neighbourhood.—P. G.

Stone Apple, or Loddington Seedling.—This excellent Apple, the original tree of which still stands in sight of my window, seems likely to maintain its good free bearing character this year, as although most kinds are bearing a thin crop, this is well set with fruit. I may mention that the name of Stone refers to the original occupier of the farm, and Loddington to the parish in which it grows.—J. GROOM, Linton.

Mulching Strawberries.—This important operation in reference to Strawberry culture should be performed early in the season before the flower-stems get far advanced, as if deferred until the blossom is open, or, as is too often the case, until the fruit is formed, it cannot be so expeditiously or effectually performed. We usually take long litter from the stable to our Strawberry beds,

when it is spread evenly over the surface and then worked around the crowns by hand. If done in March or April, its manurial properties are gradually washed down by rains, and the straw is left clean and sweet for the fruit to rest on, keeping the soil moist and drying quickly after rain. I have tried many other kinds of material for this purpose, but have found nothing so satisfactory as stable litter.—J. GROOM, *Linton, near Maidstone.*

Wintering Strawberries in Pots.—In reference to the controversy as to the amount of care required by pot Strawberries in winter, I send you a runner which, after lying in a 2½-in. pot all the winter in frost, snow, and rain on a path, was placed about three months ago on the inside border of a cool Vinery, where it perfected good foliage and fruit. As an experiment I also repotted some roots of the same Strawberry, *La Grosse Sucrée*, and *Sir C. Napier*, fruited last spring in a cool Vinery, and they yielded a second crop in October and November, and a third which has just been picked. I am very successful in the cultivation of Grapes, Strawberries, and Melons with humble appliances, the grand secret being "no coddling."—E. F. C., *Bath.*

Improved Quatre Saison Strawberry Duru.—This is one of the more recent and improved varieties of the season's Strawberry, which is so much grown in Continental gardens. It is to be



Improved Quatre Saison Strawberry Duru.

regretted the culture of these Strawberries is not more common here, as their flavour is good, and they continue in fruit if fairly well treated as long as the weather is at all favourable. It is offered by Messrs. Vilmorin, of Paris, and is said by them to be very fertile.

Fruit Prospects.—These become worse and worse. It seems as if the pollen had either been washed away by the rains which we daily experience, or been converted into an inert paste. Be that as it may, the fruits keep falling, falling until there are few or none left. Apples have fallen in showers; Plums in not a few cases are nearly all gone; and many Pears have also dropped. Pears, however, though flowering much earlier than Apples, have set better and keep their hold of the trees with far more tenacity. Cherries also promise to be a full crop, and those Gooseberries that escaped the spring frost seem to enjoy the constant downpours, and their fruits are swelling fast. Raspberries are also moisture-loving plants, and they show well. Strawberries, which were most promising, are failing fast, the flower and embryo fruits either dropping or rotting rapidly, till soon hardly a sound fruit will be left. This will prove a great disappointment, for hardly ever have Strawberries presented a finer prospect and forest of bloom over a fine spread of clean foliage. The better kinds of fruits on walls have also suffered much. Apricots are pushing in a wholesale way, and Peaches and Nectarines have suffered from severe attacks of curl and aphides. The fruit of both, too, are thin, though wall trees bloomed well and looked at one time unusually healthy.—D. T. FISH.

Peach Early Alexander.—If this Peach be as large and good as Mr. Rivers asserts it will be quite an acquisition and most valuable for early forcing. The Early Beatrice, as Mr. Rivers states, too small, as well-grown specimens of it are not larger than small Nectarines or full-sized Walnuts, and to any one accustomed to see fine fruit, such pigmies are not thought much of, and sorts producing them will only be cultivated for the sake of obtaining a dish or two before others, like the *Grosse Mignonne*, *Royal George*, &c., can be had in. As Peaches, like Vines, take some time to get into a bearing condition when they are planted permanently and trained to trellises, it is necessary to be particular what one buys, for it is very disappointing after waiting two or three years to find the variety introduced turns out comparatively worthless. It would appear, however, that there is no risk of this with the Early Alexander, and growers will therefore be on the look-out to add it to their collections.

I have found it a good plan where there are only two or three trees grown in one house to bud several sorts on them, by doing which a better succession of fruit may be secured, and any one having already such kinds as the *Beatrice*, *Early Rivers*, or *Hale's Early*, will find it advantageous to operate on them in the same manner, and as the *Alexander* progresses and is found more desirable the stock it is worked on can be cut away to make room. The budding of Peaches and Nectarines is a very simple affair, and is just as easy to carry out as that of a Rose, for if the bark will run properly and the bud is removed and put in without bruising the bark, it is sure to take and start away freely the following year. The trees and wood are just now in fit condition where they are under glass, and the work may therefore be carried out at once in their case, and a little later on with those on walls.—S. D.

GARDEN DESTROYERS.

THE COCKROACH OR BLACKBEETLE.

(*BLATTA ORIENTALIS*.)

THIS very common and widely distributed insect appears to be a nuisance wherever it is found. Few persons, if any, will say a good word in its favour. Many, indeed, have a sort of superstitious dread of these insects, which is probably caused by their very unattractive appearance, most unpleasant smell, and nocturnal habits. This species is not supposed to be indigenous in this country, but to have been introduced from some warmer climate; it has, however, been naturalised in our houses for many years. It is never found in this country except in warm situations, such as in dwelling-houses, hothouses, &c. In these it is sometimes found in very large numbers. In the former the amount of damage they commit is very small if proper care be taken to keep everything edible out of their way. This, however, is easier said than done, as they are almost omnivorous, and can creep through very narrow cracks. Still, the crumbs, &c., which they find on the kitchen floor are what they chiefly feed on. The cultivator is most annoyed by them in his stoves, Orchid houses, and Mushroom beds, where at times they are very destructive. The young fronds of Ferns are often attacked by them, and so much damaged that the appearance of the plants is quite spoilt. Orchids which have large fleshy aerial roots suffer very much from the cockroaches eating the young tips. When present in large numbers collections of Orchids have been very severely injured in this way, and, in consequence, have suffered much in health. Various other plants are at times attacked by them. In dwelling-houses cockroaches hide during the day near fireplaces, behind the skirting boards, in any crack or crevice which will afford them shelter. In greenhouses they will conceal themselves under large pots which have not been moved for some time, in cracks in the walls, particularly if they are in warm situations, near flues or hot-water pipes; and although such large insects when fully grown, will crawl into places which at first it would appear impossible for them to get into.

Many devices have been tried to keep this pest in check, most of which are efficacious to a certain extent, but none are certain to exterminate them; and while circumstances favourable to their mode of life and propagation still remain, it is almost useless to do so, as a fresh stock is sure sooner or later to occupy their places. The best chance of really ridding a hothouse of this pest is to reduce their numbers by traps and poison as much as possible, and then to fill up every crack and crevice where they could find shelter with cement, and to remove all pots and movable articles under which they could hide. In dwelling-houses care should be taken to fill up all cracks near kitchen ranges, &c.; to clear out all cupboards, and to leave nothing about, such as crumbs, &c., on which they can feed. If due care was taken by every one whose premises are infested by this insect, it would soon become a *rara avis* in this country. Among the many plans for destroying cockroaches suggested by various persons, the following are perhaps the best. The common traps sold in the shops are very good, but after a few days' use the beetles seem to avoid them; whether the traps get tainted by use in some way, or what the cause is, I cannot explain. A small basin half filled with beer or porter and sugar, or, if the cockroaches are teetotalers, honey and water or treacle, with small pieces of lath placed so that the insects can run up them from the ground to the rim of the basin, answers better than the traps, and the basin can be thoroughly cleaned and fresh pieces of lath used occasionally; gallipots sunk in the ground so that the rim is level with the surface, partly filled with one of the above-mentioned liquids, are very useful. Arsenic mixed with honey or boiled Potatoes or Oatmeal is much recommended as a very fatal bait. The heads of common matches dissolved in water and mixed with flour

and sugar, two boxes of matches to $1\frac{1}{2}$ pints of water, 1 lb. of flour, and $\frac{1}{2}$ lb. of sugar, Chase's beetle paste, Roth and Ringeson's beetle poison, and Hardiman's beetle powder, have been used by many cultivators with great success. All these poisons are best laid on small pieces of glass, glazed earthenware, or slate, for if placed on any absorbent substance these preparations soon become dry, in which state they are useless; but if kept moist they may be used two or three nights in succession. Care should always be taken that no cats or dogs should have access to the places where the poison is laid; it is always safer to remove the baits in the morning. Hedgehogs are often employed to destroy these insects, and are very useful when kept in kitchens for this purpose. Fronds of the common Brake (*Pteris aquilina*) are sometimes laid about near their haunts, which they are said to eat greedily, and to die soon afterwards from the effects. The cockroaches belong to the same Order (Orthoptera) as the grasshoppers, but they constitute quite a distinct family, and have nothing to do with beetles, though they are often called so by ignorant persons. Those species which are indigenous to this country are comparatively small, never infest houses, and are not known to be injurious to cultivated plants in any way. Some of the tropical

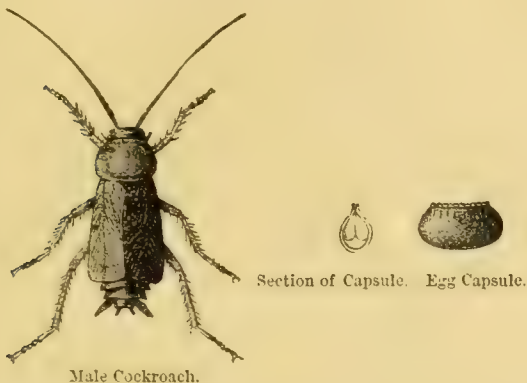
two broods of this insect during the year, although they may be found of all sizes at any time of the year. G. S. S.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE thirty-sixth anniversary festival of this institution was held on Wednesday evening last at the "Albion," Aldersgate Street, under the presidency of Mr. Serjeant Cox.

The usual loyal toasts having been given, the chairman proposed the toast of the evening, "The Gardeners' Royal Benevolent Institution; long may it prosper." He stated that the society had existed more than forty years, and that it began its career in a humble way with a very small party at its first dinner; it had, however, grown and grown till it had reached its present magnitude. That was, no doubt, because its objects were so excellent, for they were nothing less than making provision against misfortune that will come sometimes even upon the most prosperous without any fault of their own. The objects of the society were to enable those whom misfortune had visited to end their lives comfortably and without absolute penury. He observed that the provision made for males, £16 a year, was a very moderate sum indeed for nurserymen, seedsmen, gardeners, and growers who had fallen into distress, or for their widows or families. No object could be more admirable than that. There was no employment the active pursuit of which so much exposed a man to early illness as that of gardening, for he had to go from one atmosphere to another, from moist to dry, and there were many constitutions which could not endure it. The gardeners were of all persons the ones for whom provision should be made for times when distress might come upon them. It might be asked what service the society had actually done. He was himself anxious to know what it really had done, and the secretary had placed before him some of the cases in which charity had been exercised, and which will leave no doubt on any mind of the great uses to which these funds are devoted. One of the cases, he would say, was that of a gentleman who was himself a seedsman and member of a flourishing firm, who commanded a very large income and lived in the highest state of respectability. He was also a subscriber for more than twenty years to the society; but misfortune came upon him and his partners and he became almost dependent upon the society. He is more than eighty years of age, and has to look for his support from the society. Another case was that of a gardener who had been in the service of a gentleman over forty-nine years. His employer told him that he had provided for him in his will, and that he should have an annuity of £100, but, owing to the will being disputed and set aside, the gardener was thrown upon his own resources, and would have almost starved, but for the help he had received from this society. These were objects the importance of which could not be exaggerated, and of which too much could not be asked for their support. In the first place he would appeal to the nurserymen themselves. From the list of subscribers he gathered that throughout the country they did not contribute to the society as they should do, and he would urge upon them that for their own interests they should become subscribers. Their managing men should also subscribe, and it was to their interest to do so. He would appeal also, and he hoped not unsuccessfully, to the "outsiders," the horticulturists of this country, the men who love gardening and follow it for pleasure and not for profit, the thousands who are making horticulture their great pursuit and pleasure, to assist by subscribing towards the funds of this society. As regards the nurserymen, he would ask them one and all, what would they do if it were not for collectors—men who went to all parts of the world, and sometimes at great risk, to collect rare and beautiful plants, &c., for the adornment of our gardens? They all knew the name of Veitch; he remembered the old Mr. Veitch when he lived in Exeter, and how he used to see him constantly at his place of business there. He was sorry to say the representative of the third generation was not among them, but he had received a letter from him, expressing his great regret at not being able to attend, but that his heart and soul were with them. He had forwarded them ten guineas. Mr. Veitch, Mr. Bull, and his old and much respected friend Mr. Williams, to each of these they were all deeply indebted. If all the nurserymen and growers and all the amateurs would subscribe, by-and-by the chairman would have the pleasure of announcing a pension something more than £16 a year.

Mr. Robert Wrench (the treasurer) responded to the toast. He hoped that as a result of the chairman's remarks their hearts would be touched, and that they would go out into the world and try to get others to contribute to the society. The great difficulty was that they could not get those who were most interested in it—the gardeners themselves—to do their part, although they were not at all slow in asking help in the time of their troubles. He hoped most



Male Cockroach.

species are very large—one measures 6 in. across its wings when fully opened—and the damage caused by some of these insects is very considerable, as they will devour almost anything that comes in their way. An officer on one of Her Majesty's ships on the Australian station told me that a harmonium on board was entirely destroyed by them, only the case and metal work remaining; his clothes, books, and papers were also much injured. Cockroaches undergo the same number of transformations as other insects; but when in the larva (caterpillar) and pupa (chrysalis) states differ very much from most insects, as in both states they much resemble their parents, and the pupae, instead of being in a quiescent condition, are just as active as the perfect insects. The female, instead of laying her eggs singly, deposits them altogether, surrounded by a horny case, in some convenient place. This case is often carried about by the female, for some days protruding from her body; it is somewhat the shape of a bean, and is not quite $\frac{1}{2}$ in. long, and has a longitudinal slit along one edge which is rather compressed; the lips of the slit are serrated and cemented together. The eggs within are placed separately in two rows of chambers, and are usually sixteen in number. When the young are hatched they discharge a fluid from their mouths, which dissolves the cement at the slit, and the young are able to push their way out. At first the young are whitish, but they soon become darker, and are very similar in appearance and habit to the perfect insect, but are smaller and entirely without wings. They change their skins five times within about three months; after their fifth moult they are in the proper state; the thorax is now fully developed, and the rudiments of wings are apparent; in about a month the skins are cast for the last time and the insects are in their perfect condition. The cockroach is dark brownish-black, very shining, about 1 in. long, and much flattened. The head is furnished with a pair of very long, hair-like antennae, consisting of a great number of very small joints. The mouth is provided with a pair of strong toothed jaws; the thorax is roundish, the width rather greater than the length, flat, with the central portion somewhat raised. The legs are long, flattened, and armed with strong spines. The joints of the body are very well defined, and from between the last two there proceeds a pair of shortish many-jointed organs, the use of which is uncertain. The males may easily be distinguished from the females by their larger wings. In the former they are long, the upper pair being rather horny, and forming a covering for the lower when at rest. The female has only the rudiments of wing-cases and no lower wings. There are only

sincerely that what he had said would have some little effect upon them. The loss of a small amount of 6d., slipped in a box each week, would not be felt, and would more than make up the guinea subscription.

Mr. Rudkin, C.C., proposed "The Health of the Chairman." This was a pleasing task, because their friend had pleaded to them so eloquently, and he believed the result would be a large subscription. There was no doubt that at gatherings of the kind it was desirable to have a gentleman occupying the chair who thoroughly appreciated the position he was in. He believed the chairman was a great lover of flowers, and he was given to understand that he was one of those who thoroughly patronised this institution.

The chairman thanked them for the kind expressions of their regard. He felt a great interest in the society, for he had been an ardent lover of horticulture from early youth, and still paid much personal attention to his garden.

Mr. Brandreth Gibbs, in proposing "The Health of the Secretary," said that their secretary was undoubtedly a sympathetic man, and had always got the interests of the institution at heart; therefore it afforded him very great pleasure to be there, and to ask those present to show how highly they appreciated his long and valued services. The toast having been drunk with great cordiality,

The secretary rose and said that the list of subscriptions which he held in his hand was a very long one, and amounted to a large sum; indeed, the subscriptions had come in much better than he had anticipated. The list was too long to read to them, but amongst the names were the two firms of Messrs. Dicksons, of Chester, one of which contributed 43 guineas and the other 40 guineas. The Duke of Westminster had also forwarded them 5 guineas, which would be continued yearly. Then their worthy chairman had brought over 70 guineas, and last, but not least, their old friend Mr. John Fraser had sent 100 guineas, while the total amount of subscriptions amounted to 500 guineas. Many years ago, in the early days of the institution, they could only manage to get about thirty-five people to their dinner, and when the subscriptions amounted to about £60 it was thought very good indeed. He regretted to say that there were at the present time but three gentlemen living who were the society's supporters in its early days; they were Mr. Sangster, Mr. John Lee, and himself. In conclusion, he hoped to serve in the future, as he had done in the past, to the best of his ability.

The "Health of the Treasurer" having been proposed by the chairman and responded to,

Mr. Shirley Hibberd proposed "Success to the Royal Horticultural and Royal Botanic Societies of Great Britain," and in the course of his remarks said that the smaller societies helped in a very considerable degree the domestic life of this country. The great societies in other large towns, too, were promoting the interests of horticulture in a special manner. They collected and diffused useful information, and they maintained the standard of taste, which was a matter of the utmost importance. With regard to the commercial depression, it did not appear to him to have affected gardening much, for both gardeners and gardens still continued to increase and multiply. Their gardens no doubt enabled them to bear the dulness of the British winter, therefore the art of gardening should be encouraged by all the powers they possess; and all that belonged to gardening should most certainly have their sympathy.

The chairman next proposed "Success to the Seed Trade," coupled with the names of Messrs. F. Arthur Dickson and B. S. Williams, both of these gentlemen responding in suitable terms.

by Messrs. Keynes & Co., Salisbury, and comprised fine examples of John Hopper, Eugène Appert, Miss Hassard, La France, John Fraser, Exposition de Brie, and others. The next best collection was contributed by Mr. May, the crowded arrangement of whose stands was a remarkable contrast to the thinly-disposed stands in the preceding collection. Messrs. Kinmount & Kidd, Canterbury, had some splendid blooms in their first prize collection of thirty-six single trusses, amongst the finest of which were Baroness Rothschild, Madame Lacharme, Duke of Edinburgh, Annie Laxton, Cheshunt Hybrid, Abbé Brammer, Dupuy-Jamain, Baronne Haussman, Julie Touvais, and John Hopper. The others in order of merit were Mr. W. Corp and Mr. W. Piper. For twenty-four varieties in trusses of three the exhibits were inferior, and the first prize was accordingly withheld. Messrs. J. Mitchell & Sons, Uckfield, were first with twelve Tea or Noisette varieties, the best of which were—Maréchal Niel, Comtesse Ouvaroff, Jean Pernet, and Moiret. The classes for amateurs were more numerous represented, though the Challenge Cup for forty-eight single blooms brought out no competitors. The best thirty-six blooms came from Mr. J. Hollingworth, and comprised fine examples of Marie Baumann, Victor Verdier, Sultan of Zanzibar, Charles Lefebvre, Duke of Edinburgh, Adam, Beauty of Waltham, and Madame Willermoz. Mr. T. Jowitt showed some fine blooms in the next class, amongst which Niphetos was particularly noteworthy. There were six other contributors in this class. Collections of nine blooms were numerous, and comprised some remarkably fine examples, especially those from the Rev. H. Biron, who gained the highest award. Rose Maréchal Niel was shown in excellent condition by Mr. J. Davis. Messrs. Curtis, Sandford, & Co. were the only exhibitors of twelve blooms of Abbé Carrière, and the classes for trusses of Marie Rady, Reynolds Hole, and Marquise de Castellane were totally unrepresented. The best dozen blooms of any Tea or Noisette variety were shown by Mr. N. Farren, Cambridge; the old Souvenir d'un Ami was the kind exhibited, and they were in very fine condition. The next best dozen consisted also of the same variety. The beautiful Cheshunt Hybrid was also shown in this class, to which the third prize was awarded. New Roses were exhibited by Messrs. Curtis, Sandford, & Co., and comprised the following: Madame W. Bull, Penelope Mayo, Mabel Morrison, Catherine Bell, Madame Gabriel Luizet, Mrs. Baker, Duchesse d'Ossuna, Mons. Fillion, Souvenir d'Adolphe Thiers, Madame Berthe de Montchauveau, and Mons. Michel Dupré. Several collections not for competition were exhibited, the principal of which being from Mr. W. Corp, Oxford; Mr. Prince, Oxford; Mr. C. Davies, Aynhoe; and Mr. Tranter.

Miscellaneous.—A choice group of plants was contributed by Messrs. Laing & Co., Forest Hill, consisting of fine examples of tuberous-rooted Begonias in rich variety, Palms, Dracænas, Crotons, and Caladiums, the whole effectively arranged, and adding much to the attractiveness of the show. Cut blooms of Pansies, Pyrethrums, and Ranunculi were sent by Mr. H. Hooper, Bath; and Mr. Cannell, Swanley, showed a numerous collection of cut blooms of Pelargoniums in numerous varieties. Mr. Ware, Tottenham, also sent a collection of Pyrethrum blooms. Mr. Boller contributed an interesting collection of Agaves, Cacti, &c.; and Messrs. Dick Radclyffe & Co. their elegant statuette fountain tastefully surrounded by Ferns, &c.

A list of awards for this and the following show will be found in our advertising columns.

ROYAL BOTANIC SOCIETY.

EVENING FÊTE, JULY 2.

THE floral decorations at the annual evening entertainment held on Wednesday last formed an important feature, and on the whole were more numerous than we have noticed on previous occasions. The table decorations were much admired for their tasteful and neat arrangement, especially those in the unfurnished class, the best in which was arranged by Mrs. Guimaraens, Reigate, and consisted of Grasses, Rhodanthe, Ferns, and Selaginella, and delicate blush-coloured blossoms of Paony. For the best arranged tables in the furnished class, Messrs. Mortlock & Sons and Mr. W. Soder were awarded equal first prizes; in the former arrangement fruits formed a conspicuous item, and in the latter the common white Water Lily blooms, which admirably contrasted with the crimson flowers of *Cereus speciosissimus*. Messrs. E. G. Henderson & Sons' exhibits were very tastefully arranged, and were accorded the highest rank in their respective classes. The arrangement for a recess or alcove was much admired; the principal plants used were *Eulalia japonica zebrina*, *Cocos Weddelliana*, *Adiantum gracillimum*, *Anthurium Scherzerianum*, and the pretty *Impatiens Jerdonia*, which shows to such advantage by gaslight. The same firm also exhibited an arrangement suitable for an outside recess, in which the chief

SOCIETIES AND EXHIBITIONS.

NATIONAL ROSE SOCIETY'S EXHIBITION.

JUNE 28.

THIS exhibition, which took place at the Crystal Palace on Saturday last, was, owing to the backwardness of the season, much inferior to those held on other occasions, both in point of numbers and quality of the exhibits. This will be apparent when we mention that not a single Rose came from the Cheshunt, Waltham Cross, Slough, or King's Acre Nurseries; neither were the most prominent of the amateur growers well represented. There was, therefore, a large amount of unoccupied space. In the nurserymen's class for seventy-two single trusses Messrs. Curtis, Sandford, & Co. were first with a fairly representative collection, amongst which were magnificent blooms of Mdlle. Eugénie Verdier, the delicate-tinted La France and Rubens, fine blooms of the brilliant Duke of Edinburgh, Exposition de Brie, Sénateur Vaisse, Mons. Fillion, Victor Verdier, Eugène Appert, Prince de Rohan, and others. The other competitor in this class was Mr. H. May, The Hope Nurseries, Bedale. The best forty-eight trusses of threes were shown

plants used were *Todea superba* intermixed with the brilliant *Hæmanthus coccinea*, and *Odontoglossum vexillarium* with a background of Palms; whilst above were suspended numerous *Dendrobiums*, *Oncidiums*, and other Orchids in flower. The designs exhibited by Messrs. Dick Radclyffe and Co. were very numerous and of superior merit, and in all of them a conspicuous feature was that the plants employed were more of the hardy or greenhouse class, hence more suitable for decorating balconies, window recesses, &c., than valuable tropical exotics, and the effect produced is scarcely inferior. The exhibits in the classes for *epergne* and vase decoration were numerous, as were also those for bouquets, &c. The best hanging basket was shown by Messrs. Henderson and Sons; it consisted of *Davallia dissecta* growing naturally on the outside with the showy *Anthurium Scherzerianum* in the centre.

In the miscellaneous classes the pretty statuette fountain shown by Messrs. Dick Radclyffe and Co. formed a pleasing feature; as did also the elaborate indoor aquarium exhibited by Mr. Langbein, Wandsworth Road, to which an extra prize was awarded. Messrs. Carter and Co.'s display of annuals in the corridor had a very bright appearance by gaslight, and were the admiration of everyone. Mr. Anthony Waterer's exhibition of *Rhododendrons*, too, was well lighted, and the varied hues of these gorgeous shrubs produced a brilliant effect.

SCOTTISH PANSY SOCIETY.

RARELY has this Society's show been held under more unpromising auspices than those which attended its thirty-fifth annual competition on 27th ult. at Edinburgh. The past season has been one of the worst on record for the successful cultivation of Pansies, while the ten days previous to the show were wet, with very little sun to bring out the blooms. In spite of these drawbacks, however, the display was not greatly inferior to that of last year, which was pronounced to be the best and largest ever made by the Society. Indeed, on the present occasion the cases entered for competition numbered 160, against eighty or ninety last season—the result of fresh accessions to the membership. As in former years, Pansies for competition were forwarded from many parts of Scotland, while a box of fine fancy blooms was sent for exhibition by Capt. Halford Thompson, Hon. Sec. of the West of England Pansy Society, Exeter. These blooms suffered a little in transit, but they were good flowers, and nearly all north-raised varieties, illustrating the fact that Scotch Pansies can be as successfully cultivated in the south of England as in Scotland.

In the nurserymen's class for twenty-four blooms of show Pansies, Mr. Paul, of Paisley (for the fourth successive year), was awarded the first prize and the Society's silver medal, with fine flowers of *Cyprus*, Rev. J. Morrison, J. P. Barbour, Sir Peter Coats, Michael Saunders, Alex Watt, dark self; Mrs. Goodall (seedling), *Improvement* (seedling), white self; *Golden Queen*, *Golden Circle* (seedling), yellow self; the other flowers being seedling yellow and white grounds. Second, Messrs. Jas. Cocker & Sons, Aberdeen; third, Messrs. Dickson & Co., Edinburgh.

For twenty-four fancy Pansies, Messrs. Downie & Laird, Edinburgh, received first prize and silver medal with the following varieties: Mrs. S. Plummer, Angus McLeod, Hon. Mrs. Bentson, Jas. Grieve, Wm. Melville, Lady Falmouth, Countess of Home (an extra fine flower of immense size), Miss Talbot, Mrs. Crawley, Miss McMeeking, Miss McNut, Jas. Crave, Countess of Strathmore, Mrs. L. T. Fleming, Sir P. K. Murray, Lady Hay, Mrs. E. H. Wood, Mrs. Longfield, *Adonis*, and five seedlings; second, Mr. Paul, Paisley, with *Thalia*, *Rosamond*, Mrs. Hubbard, Thos. Grainger, J. Clark, *Champion*, J. B. Downie, F. W. Leland, Mrs. Birkmyre, May Queen, Captain Thompson, Mrs. Robinson, Captain Tomlin, Mrs. Jamieson, Duchess of Edinburgh, Rose Charlton, Wm. Melville, *Adonis*, *Monarch*, Angus McLeod, Mrs. James Watt, Seedling No. 17, Mrs. H. Dickson, Mrs. W. O. McCormick; third, Messrs. J. Cocker & Sons.

In the open class Mr. Paul carried off first for eighteen show Pansies with J. P. Barbour, *Cyprus*, *Mauve Queen*, Rev. J. Morrison (dark self), Mrs. Goodall (seedling, white self), *Golden Circle* (seedling, yellow self), *Florence*, *Minnie*, *Jeannie Grieve*, *Eurydice*, *Mary Paul*, *Lizzie Goudie* (white grounds), James Orr, Clonard, John Saunders, and three seedling yellow grounds.

Messrs. Downie & Laird were first for twelve bunches bedding *Violas* and twenty-four bunches *Violas*; Messrs. Dicksons & Co. second.

Messrs. Dicksons & Co. first, and Messrs. Downie & Laird second, for twenty-four bunches of bedding Pansies (excluding fancies). The bedding *Violas* and Pansies attracted much attention by their bright and varied colours. For three blooms dark self Pansy J. P. Barbour, Mr. Paul was first, also with three blooms fancy Pansy *Attraction*. Twenty-four self Pansies, viz., four blue, six

white, six yellow, and eight dark—first, Mr. Paul, with *Sunnypark Rival*, *Crossflat Rival*, *Royal Blue*, *Bluestone*, blues; Mrs. Goodall, *Improvement*, Miss Ramsay, *Purity*, *Bessie Peacock*, *May Queen*, whites; *Golden Queen*, *Golden Circle*, *Cloth of Gold*, *Citron*, *Zama*, Dr. Masters, yellow; J. P. Barbour, *Cyprus*, *Dean's Glen*, *Oceola*, Michael Saunders, Rob Roy, W. S. Andrews, Walter Shearer, darks. Best black self (shown separately)—first, Mr. Paul, with James Dalziel. Best white ground in the exhibition, Mr. Kidd, *Rothsay*, with Miss Ritchie (seedling). Best yellow ground, Mr. Barr, Paisley, with Dr. Geo. Robertson (seedling). Best dark self, Mr. Paul, with J. P. Barbour. Best white self, Mr. Paul, with Mrs. Goodall (seedling). Best yellow self, Mr. Paul, with *Golden Circle* (seedling). Best blue self, Mr. Ross, *Laurencekirk*, with *Sunnypark Rival*. Best flower in the exhibition, Mr. Paul, with J. P. Barbour. Mr. Borrowman, Beeslack, gained the medal given to the winner of the greatest number of prizes, he having five firsts, six seconds, and one third; Mr. Paul being second with ten firsts and one second.

It is unnecessary to give the other prizes in detail. The gardeners' class was well represented by Mr. Borrowman, Mr. Forbes, Paisley; Mr. Airdrie, *Campbeltown*; and Mr. McCosh, *Montrose*; while in the amateurs' class, Messrs. Ross, *Laurencekirk*; Goodwin, *Malcolm*, *Kirkintilloch*; Barr, Paisley; Kidd, Thomson, *Rothsay*; Fleming, Berwick; Storrie, *Lenzie*; and Skinner, *Pennicuik*, showed, in excellent form.

THE EXHIBITION OF THE NEW YORK HORTICULTURAL SOCIETY.

THE annual summer exhibition of this Society was held in New York City on the 11th, 12th, and 13th of June. It may be remarked that this association holds a somewhat similar position here to that held by the Royal Horticultural Society in London, perhaps, and hence its successive meetings are always looked forward to with much interest by all lovers of the garden. The choicest varieties and the most remarkable specimens usually find their way to its handsomely-arranged tables, which are visited by practical amateurs and the *élite* of the garden art. The present display was held in Madison Square Garden, better known as Gilmore's Garden, a building eminently adapted for the purpose. In general extent and abundance the exhibition was perhaps somewhat less full than on previous occasions, but this was fully made up in the merit and superiority of the collection. The display of Orchids comprised the finest collection ever brought together here; over 100 specimens of the rarest varieties were shown, many of them exhibiting much skill in their culture. Among them I might name the *Odontoglossums*, a delicate white *O. vexillarium*, valued at 200 dollars; several species of the *Cattleyas*; *Dendrobiums*, *Aerides odoratum*, and the *Lælia autumnalis*. Mr. Buchanan's group of *Agaves* and *Palms* was also a most attractive exhibit. Mr. Roenbeck, the great Fernist of New Jersey, contributed a very handsome and most interesting collection of these *Cryptogamic* plants, embracing some fifty varieties from broad, arched Tree Ferns to the delicate Maiden-hairs. He has succeeded in raising some fine seedlings of the latter class. There was also a very fine display of stove and greenhouse plants, many of which were grouped and arranged with excellent taste, and embraced fine specimens of *Cypripediums*, *Marantas*, and *Alocasias*; also a few plants of *Curmeria picta*. Mr. J. S. Bush's collection contained a fine variety of *Crotons* and some pretty *Dracænas*. The display of bedding plants was large and choice. Messrs. Woolson & Co., of New Jersey, had a unique arrangement of cut flowers from their hardy perennials and shrubs which attracted much attention, including *Rosa rugosa*, *Viburnum plicatum*, and the charming native Orchid *Cypripedium spectabile*, and *Gillenia trifoliata*. There were, however, less cut flowers than usual, but those shown were in most cases prettily disposed in handsome natural groups, and the huge uncouth "floral designs" were largely omitted. The display of *Roses* was very fine, and many choice varieties were shown evincing careful culture. The leading American novelty in this class was the American Banner *Rose*, recently produced and shown by Mr. Peter Henderson. In it the colour and details of the national emblem are partially reproduced, and it formed an object of considerable interest. Its production is a somewhat marvellous freak. Some of the *Jacqueminot* blooms were exceptionally perfect. Messrs. Parsons & Sons had an excellent collection of evergreens and Conifers, for which they have long been celebrated, and the grouping of their exhibits was happily effected. Some of the newer varieties are specially attractive in colour, form, and habit. Their show of deciduous trees and shrubs, and the new Japanese Maples was also a most interesting feature of the exhibition.

The tables devoted to the display of fruit, owing to the earliness of the season, were not large, and mainly contained *Strawberries*, of which there was a smaller variety than might have been shown a week later. However, some very fine specimens were shown, and

the wonderful progress that has been made in this country of late years in the culture and improvement of this most luscious and wholesome fruit was amply indicated. E. P. Roe, of the lower Hudson valley, took the prize for the best collection, which contained some very handsome fruit. His specimens of the President Lincoln variety were quite remarkable. This is now the largest kind grown in this country, and in other ways most promising, as I can fully testify, having specimens in my garden now measuring from 7 in. to 10 in. in circumference, with an excellent flavour. Of this and other new American varieties I shall, if all goes on rightly, speak more in detail in a future number of THE GARDEN. Mr. Peter Henderson also exhibited some fine specimens of this fruit, and took a number of prizes for special varieties. The meeting was most successful, it being very largely attended.

H. HENDRICKS.

Kingston, N. Y.

Richmond Horticultural Society.—The recent annual summer exhibition of this society, held the other day in the old Deer Park, was in all respects a great success. The grand groups of plants sent by the leading London nurserymen were objects of close attention, and hundreds clustered round the pans of tiny Sundews and Fly-traps, so-called carnivorous plants, which but for the protecting bell-glasses might have been subjected to rather too severe treatment. Messrs. Veitch and Sons had Orchids, Nepenthes, Lady's Slippers, Begonias, and many rare plants, a beautiful group; and fixed into a pot, a branch, literally a mass of snowballs, of the hardy *Viburnum plicatum*. Mr. John Wills also had a fine group, that included many fine *Dracenas* and beautiful *Gloxinias*. Mr. B. S. Williams had huge pitchers that excited the wonder and admiration of the spectators. Mr. Boller put up one of his curious groups of Cacti, which included a *Pilocereus senilis*, the White-haired Old Man, and another hard metal-like specimen, each fifty years old. There also was a quantity of the diminutive forms for which Mr. Boller is famous. Messrs. Osborn and Sons had not only groups of indoor plants, but also a pretty and very interesting collection of hardy perennials. Of table decorations, which now form an important element in household floriculture, there were numerous examples. The prizes offered for model gardens brought forth some singular illustrations, rather to be avoided than imitated; whereas models of real gardens with the actual garden specified would be really instructive. In the groups of plants arranged for effect on the ground the art capacities of the gardener was to some extent brought into play. The group arranged by Mr. James Hudson, gardener to T. S. Atkinson, Esq., of Gunnersbury, was in every way admirable.

Daniels' Defiance Cabbage Competition.—Messrs. Daniels, Norwich, offered some time ago several money prizes for the heaviest and best three specimens of the Defiance Giant Cabbage grown from seed supplied by them, and for the prizes there was a spirited contest on Wednesday last. Specimens were sent by over a hundred growers, and many of them were remarkable, not only for size, but quality. It will be seen from the prize list that the premier exhibits came from the Isle of Wight, and others from various districts. There were numerous competitors in Norfolk, but their specimens, though fairly well grown, were small compared with those of the prize winners. The following is the prize list: First prize, £10, Mr. S. Osborne, Old Park, Ventnor, Isle of Wight, weight 36 lb. 8 oz. Second prize, £7, Mr. T. Creed, Kemsdale, Faversham, Kent, weight 35 lb. 14 oz. Third prize, £4, Mr. E. Pitts, Mirables, near Ventnor, Isle of Wight, weight 35 lb. 12 oz. Fourth prize, £2 10s., Mr. E. Samuel, Sawston, Cambs, weight 34 lb. 14 oz. Fifth prize, £1 10s., Mr. E. Nunn, Heybridge, Maldon, Essex, weight 33 lb. 4 oz.

Lime Water and Slugs.—It seems to be a general opinion that slugs are more abundant this year than has ever been known, and it appears very extraordinary that no writer on the subject has yet said a word respecting the most effectual remedy for them, viz., lime water. Hot lime is constantly recommended, but if any one will watch the process of throwing hot lime over the ground or the plants infested by slugs it will be seen how numerous are the spots and spaces which the lime does not cover, and how utterly impossible it is for the most skilful sprinkler of hot lime to apply it effectually all over a leafy plant. If those interested in the destruction of slugs will take the trouble to mix hot lime and water together, and after well stirring it let it stand until all the lime has settled at the bottom, and then use the water in the evening with a watering pot with a good rose, they will be astonished and delighted to find in morning hundreds, if not thousands, of dead slugs, some of them as small as the top of a pin, which the lime water thus applied has killed on the leaves and about the plants where the powdered lime would never have reached them. It is not my intention to

depreciate the value of the application of dry lime, but it only does half the work, and I strongly recommend, from experience, watering with lime water as the most effectual remedy for slugs as well as using dry lime earlier in the day. The watering should be applied the last thing wherever there is danger of the sun striking on the plants or flowers.—A.

ANSWERS TO CORRESPONDENTS.

Strawberry Fungus.—S. The plant sent is suffering from an uncommonly bad attack of the fungus named *Sphumaria alba*. In a young state this fungus is like masses of thick white froth of various sizes. It is more common on Grasses than on other plants, and when young, as Berkeley states, it "might easily be supposed to be of animal origin."

Names of Plants.—G. J.—*Scilla campanulata*. W. S.—*Inga pulcherrima*. G. R.—Variety of *Ranunculus asiaticus* fl. pl. J. M.—Not an uncommon occurrence; the deep purple-coloured flower is *Cytisus purpureus*, the lighter-coloured kind C. *Atlanti*; and the other the common *Laburnum*, C. *Laburnum*. F. B.—2, *Amelanchier canadensis*; 3, *Acer platanoides*. Gardener.—Varieties of *Azalea pontica*. W. A. E. 1, *Polygonatum multiflorum*; 2, *Muscari monstrosum*; 3, *Potentilla*—cannot name species without lower leaves; 4, *Tovaria ravemosa*.—G. B.—*Solanum jasminoides*. G. B., *Wormaster*. *Jamesia americana*. T. A. M.—2, *Iris florentina*; 5, *I. lurida*; 7, *I. variegata*; 8, *I. Pseud-acorus*; all the others are varieties of the above and *I. germanica*, which we cannot undertake to name. Major-General.—1, *Adiantum cuneatum*; 2, A. *Capillus Veneris* (west of Ireland form); 3, A. *scutum*; 4, A. *venustum*; 5, *Athyrium Filix-Femina*. H. T.—4, *Acropora Hodggesi*; 1, apparently *Oncidium divaricatum*; the other *Oncidium* we cannot name, as the specimens are insufficient.

Rosa Camellia.—Some time ago Capt. Thomas asked for information respecting this Rose. *Rosa Camellia* (Siebold) is not *rugosa* or *Regeliana*, but rather a variety of the *Rosa sinica* (Aiton), a climbing kind very common over a large part of temperate Asia, as well as in South America, to which Michaux believes it to be indigenous, and described it under the name *laxigata*. It has also been described by Dr. Lindley and M. de Candolle under the name of *R. nivea*, and by another French botanist under the name of *R. Cherokeeensis*. It is only half-hardy at Segrez, suffering in severe winters. It belongs, I think, to the section of the Banksian Roses.

Wall Plants.—Could you recommend me a few plants not generally grown out-of-doors to try against a 10-ft. south wall with a good 8-ft. border?—R. H., Torquay. [Try *Lapageria rosea* and *alba*, *Solanum jasminoides*, *Akebia quinata*, *Hebeella latifolia*, *Rhynchospermum jasminoides*, *Choisya ternata*, *Piptanthus nepalensis*, *Convolvulus Cneorum*, *Mutisia decurrens*, *Billardiera longifolia*, *Cantua dependens*, *Berberidopsis corallina*, *Plumbago capensis*, *Tecoma grandiflora*, *Clematis indivisa*, *Melianthus major*, *Medicago arborea*, *Ceanothus punicifolius*, *Lonicera sempervirens*, *Mandevilla suaveolens*, *Indigofera decora*, *Magnolia fusca*, *Embothrium coccineum*, and *Fremontia californica*.]

Bananas.—We have several Banana plants here which refuse to fruit, but which continue to grow most luxuriantly, the stems being 2 ft. in circumference and about 9 ft. high. They were taken off an old plant as suckers in the spring of 1878, and grown on throughout the summer. By the end of the season they were good plants in large boxes, and we wintered them in a minimum temperature of from 45° to 50°. From previous years' experience I fully expected them to fruit this spring, but they have not done so. What should I do in order to induce them to fruit, as it is of great importance to me to have the fruit well advanced towards ripeness before winter sets in?—ENQUIRER. [If the height, 9 ft., includes the leaves as well as the stems, I should say that the plants are not yet large enough to fruit. I measured one to-day and found it about the same height, with a stem over 2 ft. in circumference, and from its appearance I should think it will not fruit for five or six months yet. I never wintered any in so low a temperature as that just quoted, and should think that want of warmth is the cause of their being so long in attaining the size named. If planted out, as ours are, and grown in a high temperature, they would most likely have shown signs of fruiting early in the spring. —GEORGE SAGE, Ashridge.]

Celery all the Year Round.—Can any of your readers say whether it is possible to rear a succession of Celery all the year round, and how? Celery stewed is stated to be an almost certain cure for rheumatism if taken daily for a long period; hence my question.—H. C. [It is possible to have Celery all the year round. Sow the first crop in January in a hotbed or in a hothouse near the glass. The plants, when large enough, must be pricked out in another hotbed, or they may be potted singly in small pots and grown on carefully without check, potting them into larger pots as they require it, and keeping them near the glass. In April plant them out under handlights on a prepared bed, three plants under each light. Earth them up by raising the soil in a cone-shaped mound round them. A strip of paper should be tied loosely round each plant before the earth is added. Another pinch of seed may be sown in February, and the main crop in March. Both sowings should be made in gentle heat under glass. Sow in the open air in April and again in May. Celery being a biennial under ordinary culture, the May-sown plants will not "bolt" till late in the blooming year.—E. H.]

Questions.

Olea fragrans.—Can any of your readers inform me if *Olea fragrans* is hardy enough to bear our winter planted out-of-doors? We are about 16 miles south of London, and 600 ft. above the level of the sea.—G. M.

Potato Failure.—Last year I planted Irish Green Top Rock Potatoes very early, and they were taken up before they were attacked by the disease, and a capital crop they were; some I have now are quite sound and boil well. We planted again seed from last year's crop early this spring, but many of them have rotted in the ground, and the rest are poor and weak in growth. The ground is stiff loam and well manured. Can any reader of THE GARDEN explain the cause of this failure?—R. G.

MR. HOSKYNs, late of Onslow, Shrewsbury, has been appointed gardener to George Wilder, Esq., Stanstead Park, Emsworth, Hants; and Mr. Crane, late of Hulloa Castle, Kent, has gone to Lord Sackville, Knole Park, Sevenoaks.

"This is an art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare*.

THE COLLEGE BOTANIC GARDENS, DUBLIN.

WE have great pleasure in announcing that Mr. F. W. Burbidge has been appointed curator of the University Botanic Gardens at Dublin. All who know Mr. Burbidge will feel that in this case a very important appointment, and one not very easy to fill with the right sort of man, has been bestowed, as it should be, upon the candidate most fitted for it. Mr. Burbidge's tastes and training have been exactly of the kind to fit him for the accumulation and preservation of such collections of plants from all regions as ought to be represented in any botanic garden worthy of the name. The College Garden at Dublin is one of the most interesting that we know of, and quite distinct in plan and contents. What its charm consists in we cannot define, but we have experienced feelings of pleasure in all that concerns plants there such as we have never experienced in any other garden, which may, perhaps, seem a very odd statement to make. Situated not far from one of the lower shores of Dublin Bay, the soil is very deep and sandy, and on this most herbaceous plants succeed as one seldom sees them anywhere else; and there is a very interesting and full collection of trees and shrubs and hot-house plants. Not the least remarkable, however, are the high and massive walls, everywhere covered, and well covered too, with interesting climbers or shrubs. Ireland is the country of ugly dead walls, but the garden walls here may be called beautiful, and they partly explain the peculiar charm of the garden. The college gardens were for many years under the superintendence of Mr. John Bain, who retired a few years ago through ill health. Mr. Bain was, as regards all cultivated and British plants, an acute and excellent botanist; while as a cultivator of the subjects thought most precious in botanic gardens and good collections, whether these were delicate Alpines or curious Fly-catchers, or Orchids, or rare medicinal plants, he never had a superior, so far as we have seen, in the public gardens of Europe. He was succeeded by Mr. F. Moore (son of Dr. Moore), who was most energetic and successful while he retained the curatorship, which he resigned on being appointed to Glasnevin. In the face of the tendency which has recently been manifested in certain important gardens to appoint men as curators who have had no training but that which fits them for ordinary private places, it is gratifying to see that a man well acquainted with both tender and hardy plants, and, moreover, familiar with their culture, has been appointed to a charge so important, not only as regards Trinity College, but the horticulture of Ireland, and the United Kingdom generally.

THE FUTURE OF OUR BOTANIC GARDENS.

FROM the numerous recent deaths among the curators of our great botanic gardens, and other changes that have taken place and are, we learn, about to take place therein, one is led to think somewhat more than usual of the difficulties under which botanic gardens are generally managed, and to point out the true way of managing them. Our own opinion, more than once expressed, is that all gardens should be managed by thoroughly trained curators, and that anything else is a source of weakness and of evil to the gardens. What we mean by a good curator is illustrated by the late James M'Nab, of Edinburgh, and the late Dr. Moore, of Dublin, not to mention living examples. Dr. Moore might indeed be taken as a type of a good curator of a botanic garden, and he was also, as is well known, a very good botanist. But he was a thorough curator of a garden, not because he was a good botanist, but because before and above the

botanist's knowledge was that acquired from early youth as a cultivator and observer in gardens. With an ordinary amount of study and the exceptional opportunities of a botanic garden, the acquirement of full botanic knowledge is not unfrequent in such cases.

It is not with any but feelings of great respect to the professors and science of botany that we have to say so much in the interests of horticulture—that the botanist's true field of labour is the Herbarium in which to store his treasures, and books in which to make his knowledge still more accessible. The least desirable in such a case is the appointment of a mere cultivator to a botanic garden—a man knowing but a few branches of the profession—in other words, say a first-class nobleman's gardener; for the management of a botanic garden requires great and varied knowledge of plants, quite different from that usually possessed by the private gardener, and the training amongst and often a love for old types of vegetation that never come within the knowledge of the ordinary-trained gardener at all. Skill in cultivating a few families of plants is no guarantee whatever that the cultivator is in any way fit for the management of a botanic garden. What is wanted in the last case is not cultivating and preserving the common things that everybody knows and grows, but in preserving and introducing the rare or the little-known types, to which we look for so much of the interest and beauty of our gardens; therefore, when we hear of a proposition to appoint at Glasnevin, which has hitherto been managed well by Dr. Moore, a scientific director and a curator, it seems to us that this would not be the best plan in the interest of the garden, inasmuch as it would very much increase expenditure without increasing efficiency. It would cause a division of authority in the garden, which would be most prejudicial to its interests. There may, no doubt, be a great difficulty in securing a man that would possess the essential qualification as curator, and at the same time be fitted from a social and educational point of view to take his place at the head of such an establishment; but this difficulty has been got over before and should be again, such men as David Moore, James M'Nab, and a few living men whom we hesitate to name, answering all the requirements of the case.

The art or science, or whatever it may be called, of horticulture is now so vast, and has so many intricate ramifications, that nobody would probably venture to doubt its claims to be considered a branch of knowledge of the highest importance, and worthy of a special study. That such comparatively few prizes as do occur in its high walk should be given to men in an essentially different, though an allied, branch of human knowledge, is not fair to horticulturists. That such things should occur is no doubt partly owing to the fact that horticulturists as yet have no purely horticultural, no thoroughly good preparation for training their own young men in a fitting way. There is no such thing as a properly organised school of horticulture in any country, certainly nothing like it in England. Only a one-sided miserable knowledge of horticulture can be gathered by young men in any one place having pretension to teach the art. If a nurseryman or any other person have a son whom he desires to give full acquaintance with horticulture, there is no place where he could now put him with any certainty of his getting a good all-round knowledge. If there were such a place, and as much trouble was taken in selecting a number of young men as is taken in other professions of no greater importance, there would probably not afterwards be any difficulty in selecting men in all ways fitted for the good management of a national or botanic garden, and with the other acquirements essential for the position. In the meantime we can only hope that little harm will come from the present inaction; and that horticulturists will one day see clearly the urgent need of an organisation for the efficient teaching of an art which is so important in all ways to the true wealth and beauty of every country. A very great deal might be written, showing the injury to the art of horticulture by allowing men to direct important gardens who have no real love for the art and real knowledge of it.

Glasnevin.—In a letter received yesterday from Mr. Norman M'Leod, Mr. Fred W. Moore received official notification of his appointment to the curatorship of the Glasnevin Botanic Gardens. The letter contains a compliment to the late Dr. Moore, which will be read with much pleasure in this city, notwithstanding the peculiarity of its grammar. It says: "Though young for so responsible a post, my lords, remembering how much the Gardens owed to the great ability, untiring energy, and long services of your father, were glad to find by the excellent testimonial you forwarded, and especially by those showing the manner in which you have filled a similar post in the Botanical Gardens of Trinity College, that they would be quite justified in appointing you to it." We understand that the salary of the late curator began at £300 and advanced to £400. From each of these sums £100 has been subtracted in the case of the new appointment. This is rather an overstrained economy, unless the intention of it be to confer the £100 a year as a pension

on Dr. Moore's widow, an application of the money which would give universal satisfaction. There is, indeed, a rumour, but we can hardly credit it, that the intention is to job the £100 a year by creating a perfectly useless office, that of a "Scientific Director," for the benefit of a gentleman, with the nature of whose claims on the Committee of Council we are entirely unacquainted. The Gardens are now a branch of the "National Institution of Science and Art," and this institution has already in the person of Dr. Steel a director who, we presume, possesses all the science that is requisite for the superintendence of the Garden and its curator. There is an adage about too many cooks, which we would commend to the attention of his Grace the Duke of Richmond, President of the Council.—*Irish Daily News.*

THE KITCHEN GARDEN.

AN ERROR AS TO ASPARAGUS.

I COULD not expect "S. D." to be well content under my correction of his mistake about blanched Asparagus. That mistake he and many others defend, and their having wrong ideas in reference to this subject does not matter much, so long as they confine them to themselves. But when people publish erroneous statements betraying that they know but little about the qualities and the cooking of Asparagus, then it is well, perhaps, that others should correct them. He asks how it comes that "in private gardens where the best of everything is produced there is no demand for white Asparagus," implying that it is to be had if desired in most private gardens. This is, of course, a statement more amusing than true. I never saw a good sample of well-grown blanched Asparagus in a private garden in this country; and good green Asparagus is not much more frequent. I was talking to Mr. Gilbert, of Burghley, the other day, who is well known to many of your readers as being one of the best gardeners in England, and he remarked that "when we want large and fine Asparagus we must send to Covent Garden for it." In country gardens people frequently eat the best they can get, and very poor it often is. The London market has lately been full of green Asparagus from France, which is not worth $\frac{1}{4}$ d. a bundle to anybody who knows what Asparagus should be. "S. D." contends that "the more there is of the green the better it is." This is quite against the practice of the best English and French market gardeners—those who supply our tables in both countries with the choicest and best Asparagus. "S. D." asked "what can there be in it but crude unconverted sap?" I cannot exactly tell him how many thousand pounds there are in it; but a good many there must be. If he asks any of the best judges in Covent Garden to supply a table in spring, they will give him the best blanched if he can afford to pay for it. By all means let those who like green Asparagus eat it—it is often very delicate and good—but we cannot allow them to prevent all fair consideration of the subject without a protest.

Our markets are full of Asparagus in spring grown in other countries, sometimes as far as a thousand miles from London. It is a vegetable which perhaps more than any other loses quality every day after it is cut. This is one reason why it should be grown in our own country. The soil and the climate of England, in almost every county, are admirably suited for the production of Asparagus. Nevertheless not only do we not supply our own markets, but many possessing large estates cannot get a really good dish to give to their friends, but have to send to Covent Garden for it. All this is wholly unnecessary, for every farmer's garden and every cottage garden might grow it well. In large places, where a few beds formed on a costly and wrong principle now furnish a very limited supply of very poor Asparagus, there ought to be an abundance for everybody. Our markets ought to be supplied by our own people, the early supplies

coming from the south and the late ones from our northern counties.

Speaking generally, Asparagus now is a luxury for the rich only. It is confessed by those who eat it most that it is the most wholesome and the most delicious of green vegetables. It must then be a benefit to make its good and simple culture known throughout the land. The question of blanching is happily somewhat apart from the question of cultivation, and people may adopt the only true and simple system without blanching if such be their taste. But a closer acquaintance with the subject will probably teach many that there is something in this despised system of blanching which so many rush into the gardening papers to declare to be an absurd practice.

V.

SEAKALE FROM SEED FOR FORCING.

THERE can be no question, I think, that Seakale grown from portions of the thong-like roots must be stronger and better after a summer's growth than plants raised from seed, for the simple reason that the former are much in advance of the latter at starting, and are in leaf and growing away freely almost before seedlings are up. Seedlings at a year old have only one crown, whereas plants obtained from roots have two or three, and therefore the yield from the same amount of ground may be safely reckoned at two-thirds more in favour of plants from roots. The practice with ourselves is, when trenching up roots for forcing, to break off any parts that are long and straggling and to save all such for sets, which are cut up into lengths at the time and buried in moist sand or coal ashes under cover till March, when they are planted out in rows at 1 ft. apart. If we do not get sufficient of these we make use of the roots of plants that have been forced, giving preference to the large roots instead of the main stem, which we invariably discard. As the roots for the greater part of their length are nearly or quite of the same size, it is necessary when dividing them into lengths to make a distinguishing cut so that at planting the right end may be put in uppermost, for if they have not made a start at the time it is impossible to tell the top from the bottom. Besides manuring the ground heavily before digging, we give it a sprinkling of salt, which not only keeps down weeds but has a stimulating effect on the plants. The salt is applied at any time during May after the first hoeing, and the ground after that gives no further trouble, but remains clean throughout the whole of the summer. Why Seakale runs to seed is because it is not cut in spring, a time when every crown should be taken off just as it starts, for if not done then the flower-heads have to be removed later on after having weakened the plants. By cropping them off early the roots soon form fresh buds, and these get quickly into leaf, and, having a long season before them, are sure to develop fine heads by the autumn. As soon as they break after having the crowns taken off they should be gone over and thinned out to two or three, for if more are left they must of necessity be smaller and crowded through the strength and energies of the plants being diverted into so many channels. It is not too late to see to plantations even now, as letting in light and air will afford the crowns left a better chance to ripen.

S. D.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Planting out Winter Greens.—The backwardness of the season will, unless extra pains be taken, interfere with the planting of our winter crops and so disarrange the system of rotation. Peas and Potatoes that in the ordinary course would have been gathered and cleared away are now scarcely fit to gather. Peas will not fill up their pods without sunshine, and Potatoes are scarcely eatable when taken out of sheer mud. Where the land is not ready but little harm will come to the Broccoli and greens if they can be pricked out 6 in. or so apart and have the soil stirred amongst them sometimes. In such a nursery-bed they may remain a month without taking much harm, and they will be gathering strength. In some gardens where land is scarce and has to be made the most of, some of the Broccoli and greens have to be planted between the rows of early Potatoes, and in this case there need be no delay in planting them out. All kinds of greens that have to stand the winter should be planted in moderately firm ground. Freshly-dug ground, unless it be land that quickly consolidates, is not suitable. I should never think of planting here on freshly-dug ground, or, if I did, I should expect to see every plant cut off in only a moderately severe winter by the frost. But it takes a very severe winter to injure plants if the land is firm when planted. It need not—it

in fact should not—be poor, but land that has been well manured for a previous crop will be in good condition for Broccoli. The crops on poor land will be much benefited by having a dressing of artificial manure hoed in round the plants when they are fairly established and are in a position to absorb a concentrated stimulant that soon passes away or at least is not of so lasting a character as farmyard manure. A mulching of the latter round the plants on poor land will be beneficial by and by when dry weather comes.—E. HOBDAV.

An Asparagus "Belt."—This part of the country (says *The Rural New Yorker*) ought to have been the native home of Asparagus, for, escaped from cultivation, it grows wild in hedge, field, wood, and meadow. Thousands of acres are under Asparagus, and twenty-acre fields are not uncommon. As here cultivated, there is no such thing as the preparation of the ground to endure for years. Sandy soils are preferred. The roots are planted 10 in. apart and the rows 4 ft. apart. Late in autumn or early in spring a furrow is ploughed directly over the plants, and this is filled with farm manure; a furrow between the rows covers this, and the whole is levelled with wood hand-rakes. Thus its cultivation is continued from year to year upon the same field. No doubt even our western readers know of the celebrated Oyster Bay Asparagus, as if that were a distinct variety; we hear little of it now, not because it is less esteemed, but because hundreds of acres are now cultivated in various parts of Long Island, of the best quality, where one acre was cultivated in years past. The Asparagus "belt" may be considered as confined to the south portion of the island; this receives the salt vapours from the sea. Some deem it necessary to sow salt, others do not, and both seem to obtain abundant crops.

Cabbage Sprouts.—There is one great inducement to cut the first crop of Cabbages early, viz., that what one loses in size by cutting before they are fully grown is counterbalanced by the rapidity with which the stalks produce a second crop of sprouts. During the late spring, green vegetables being scarce and our spring Cabbages tolerably forward, we cut the majority of them very early, and being planted in rich ground in a well-sheltered garden they again quickly started into growth, and now we have a fine second crop consisting of five or six useful-sized Cabbages on a stalk. I often wonder that this system is not more generally followed by cottagers than it is, as it is no exaggeration to say that for half the year they experience a scarcity of good green vegetables. For Cabbages the soil can scarcely be too rich. I generally plant our main crop after the Onions are cleared off, digging the ground deeply and working into it the heaviest rotten manure which we can get and plenty of it. It is now time to prepare for the principal sowings for autumn planting, the second and third weeks in July suiting most localities. Choose an open, well-cultivated piece of ground for the seed-bed, and sow thinly, covering with nets to keep off birds, and dusting with soot and wood ashes to keep off fly. Wheeler's Imperial, Early Battersea, and Enfield Market are good sorts, and some of the small, close-hearted kinds of the Early York type are extremely useful for the earliest crop of both Cabbages and Sprouts.—J. GROOM.

Cutting Asparagus.—A Wisconsin correspondent of the *Germantown Telegraph* writes: "I cut from 5 in. to 6 in. below the surface as soon as I see a spire peeping above it. In making a bed I place the crowns of the plants about 7 in. below the natural level of the ground, covering at first with only 2 in. or 3 in. of soil. I then add loose, friable soil (like sandy wood earth) until the trench is filled. The spires, passing through the friable soil with ease, grow rapidly, and when cut below the surface (as stated) are tender, crisp, and blanched like Celery. When boiled they resemble Marrow in consistency; especially so when cut just after a warm rain. I have cut spires 3½ in. in circumference, but, like all other large vegetables, the extra size did not add to the quality, but rather detracted from it. I could send you a bunch of Asparagus where every spire (5 in. in length) will snap in twain at the butt like a crisp Radish—the entire length being cut below the surface of the ground."

Peas.—I gathered my first Peas, William the First, on June 19, also Kentish Invicta a week later; both sorts were sown in turves in cold frames about the middle of March and planted out in the middle of April. They are ten days earlier than Emerald Gem, sown in the open ground in the same situation on January 6. William the First is better in every respect than Invicta. I have two rows of the first and one of the latter 75 ft. long, raised in three single light frames 6 ft. by 4 ft., each row very fine, while of those sown out-of-doors the first is thin and poor.—J. GARLAND, Killerton, Exeter.

Cutting Cauliflowers.—The following is an economical plan of cutting Cauliflowers, which Mrs. Stephens sends us from Huish's *Alphabetical Receipt Book*, and which she recommends where there is a large family, as she has for years proved its usefulness:—"The most economical plan of cutting Cauliflowers is, instead of cutting off the whole head of a Cauliflower, to leave a part on, and all the leaves,

folding them over. By this method second and third heads will be formed, and thus they may be eaten for two or three months; whereas at present, by cutting the head completely off, the bed of Cauliflower is exhausted in two or three weeks." She leaves a little branch on two sides, as large as a small egg, and thus has many times had two and even three cuttings from one plant.—*Florist*.

THE PLOUGH IN THE GARDEN.

It may interest "C." (p. 5) to know that the plough is already largely used in this locality where the spade was but a few years ago employed, viz., in Hop plantations and market gardens, and doubtless on a large scale the plough may be introduced in such a way as to materially lighten manual labour. Kitchen gardens are not so well kept as formerly, owing to the fashionable style of bedding-out absorbing so much attention. Table and indoor decoration, too, have grown to such an extent that the kitchen garden is deprived of its fair share of labour, and whether we adopt the plough with an extended area, or higher cultivation, in order to get a maximum of produce from the smallest surface, will not materially affect the cost of keeping up gardens where three-fourths of the labour are expended on purely ornamental non-producing work. Except in very large kitchen gardens even one horse could not be kept profitably employed, and yet the cost of keeping a horse is no light matter; besides, a man's time is spent in connection with the horse, and in gardens a driver must also be employed, and boys are not available for employment now until they get old enough to require comparatively high wages. In the adhesive land in this district, one horse might just loosen the surface, but it would take three to go deep enough for good vegetable culture. In the neighbourhood of London, in the Thames valley between Fulham and Richmond, where rent, labour, and every item of culture is far higher than in any other part of the kingdom, and where growers do not study appearances, but are guided entirely by the quality and returns of their crops, produced on the cheapest principle, with no edgings or foot-paths, or fruit trees to fetter their movements, I know that the plough is used as well as all other labour-saving appliances; but there are such multifarious operations connected with private gardens that can only be done by manual labour, that the work of cultivating the soil ready for the crop becomes a minor affair. Your correspondent finds fault with the designs of kitchen gardens recently published as following too closely the old beaten track; but who would have sent in a sketch of an open field, such as may frequently be seen in large establishments where the Potatoes, Turnips, and Broccoli are grown by the acre, and which, properly speaking, could not be called a garden at all? Kent, with its wealth of orchards and Hop gardens, has been justly called the garden of England, where plenty of labour has been employed to keep even the hedgerows as clean as gardens are in most counties; but a succession of bad harvests, and the slovenly manner of working the soil with the plough on the plea of economy, will soon destroy any claim to superiority of cultivation which it once enjoyed. Kitchen gardens are already in most cases large enough to supply all the wants of the household, and all they want is not to be unduly overshadowed by the ornamental departments. J. GROOM.

Linton, Maidstone.

—The utility of the plough in the garden instead of the spade is, I fancy, more theoretical than practical. "C." may have some particular garden in his mind's eye, but I imagine that as a rule gardens under spade cultivation are better kept, better cultivated, and produce heavier and better crops, acre for acre, than the best model farm in the country. To prove that spade cultivation is superior to that of the plough, one has only to look into an allotment field where spade cultivation is practised, and in some cases enforced; there will be found crops greatly superior to any on the adjoining farm.—J. M.

Painting Flowers upon Mirrors.—An art lately revived in Rome is the old Venetian art of painting upon mirrors. Birds and butterflies are also often added, and the effect of the glass underneath, especially when this is thick and bevelled, is to make them appear as if suspended in the air. Tourists remember seeing them in Venetian palaces, but faded and flecked with time, and often also coarse and heavy in design. Now the execution is much finer, and besides our flowers are enriched in quality and variety. Fornari is the best artist for this work in Rome. His flowers are poised and painted with a grace and delicacy that nature, so reluctant to give up her subtle secrets, has herself granted him. The design must be traced from natural flowers with a lithographic pencil, and painted in oils with peculiar care, for nothing can be more unlovely when badly done with muddy, ill-assorted colours. These mirrors are usually framed in carved ebony or ebonized frames in the cinque cento style, another fashion recently revived.—*Syracuse Journal*.

CULTURAL USES OF LIME SUMMARISED.

THE advantages of the use of lime are so many and so great that it is almost impossible to enumerate the whole of them. Their effects may be described as being both chemical and mechanical, and as being exercised both upon the organic and the inorganic constituents of the soil. The following may be taken as a summary of some of the principal benefits to be derived from it:—

1. Upon deep alluvial and clay soil it increases the crop of potatoes, and renders them less waxy. Sprinkled over potatoes in the store-heap it preserves them, and when riddled over the cut sets, it wonderfully increases their fertility.

2. Lime eradicates the finger-and-toe disease in turnips, and gives greater soundness and more nutritive qualities to the bulbs.

3. It gives, when applied to meadow land, a larger produce of more nutritious grasses. It also exterminates bent as well as coarse and sour grasses, destroys couch-grass, and acts powerfully upon the rye-grasses.

4. Upon arable land it destroys the corn-marigold, and weeds of various kinds.

5. It rapidly decomposes vegetable matter, producing a large amount of food for plants in the form of carbonic acid gas.

6. It destroys or neutralises the acids in the soils; hence its adaptability to sour soils.

7. It acts powerfully upon some of the inorganic parts of soils, especially on the sulphate of iron found in peaty soils, and the sulphates of magnesia and alumina.

8. It proves fatal to worms and slugs, and the larvæ of injurious insects, though favourable to the growth of shell-bearers.

9. Slaked lime added to vegetable matter causes it to give off its nitrogen in the form of ammonia. Upon soils in which the ammonia is combined with acids it sets free the ammonia, which is directly seized upon by the plants.

10. Its solubility in water causes it to sink into and ameliorate the subsoil. When the soil contains fragments of granite or trap rocks, lime hastens their decomposition and liberates the silicates.

11. Its combination with the acids in the soil produces saline compounds, such as potash, soda, &c.

12. Strewed over young plants, it destroys or drives away the turnip fly.

13. Worked in with grass seeds, the beneficial effects of lime, chalk, marl, and shell sand have been visible for a period of 30 years.

14. Applied to the rot heap, lime effectually destroys the seeds of weeds.

To sum up its advantages—When properly applied to the soil it purifies and stimulates its action, thereby promoting the growth of healthy vegetation of all kinds.—*Journal of Forestry*.

WOODLAND LAKES.

THE treatment of ornamental water in pleasure grounds is a subject that has been frequently discussed, but I do not recollect anything having been said concerning woodland lakes; yet the "Lake of the Woods" is a feature of at least a few noblemen's demesnes with which I am acquainted, and few spots are more attractive to lovers of Nature in its quieter and more solitary aspects. In ornamental pleasure grounds generally there is usually a certain amount of bustle, or at least the signs of it, present, which to some extent detracts from their enjoyment, and one longs to escape at times from the artificial dressiness and "keep" of the garden to some spot where the hand of man is less apparent, and Nature wears a simpler and more primeval aspect. Such a retreat as this the woodland lake ought to be—a deep, still, and extensive sheet of water in the solitudes of the forest, and surrounded by dense native vegetation chiefly, for in such a spot gay exotics would be an incongruity and inadmissible, though they might be associated with the wild garden, perhaps, but not too closely. A lake of this description which I have seen and remember well, may be worth describing here. It was situated about half a mile or more from the mansion, but had no connection with the flower garden or ornamental grounds, from which, however, it was reached by a half-concealed Grass path that led the visitor to a secluded ravine in the wood, where a sudden turn brought him in full view of one of the sweeps of the lake, reposing in the dense shade of the tall Pine trees with which it was surrounded, and whose deep shadows on a calm summer's day were mirrored on its bosom. The margin of the lake was thickly fringed with drooping Willows and Birches, &c., that dipped their lower branches in the water, and the background on every side was a forest of Pines, except where here and there a jutting knoll was covered by Bilberry bushes and Ferns. A narrow, half-concealed path wound round the edge of the lake, and here and there, at the most attractive spots and vantage grounds, a rustic seat was placed for the convenience of visitors, and a skiff was also provided for those who wished to enjoy

a sail, or to fish for the trout which abounded in the lake. Everything about the lake wore a perfectly natural aspect, which was enhanced by the dense masses of Bulrushes and Reeds which fringed its margins in some parts, on which coots, water hens, and wild ducks found a safe retreat. It was a warm, bright, sunny day at the time of my visit, and a more delightful retreat of the kind I thought I had never seen. Far removed from noise and tumult, everything was so still and quiet that the spectator might have fancied himself in the midst of some virgin forest. I have often thought since that in such a spot telling effects might be produced by the judicious use of fine-foliaged sub-tropical plants. The shelter from wind was perfect. Shut out on all sides, a gale hardly ruffled the surface of the lake, while on summer days the sun shone down upon the water with a fierceness that was almost unbearable, and all that was needed to give the scene a half-tropical aspect was a few well-placed groups of Palms, Bananas, Dracænas, Cannas, and such like. As it was the lake was a favourite resort for the proprietor and his guests, who frequented it perhaps oftener than any other portion of the extensive grounds, which is saying a good deal for the attractiveness of such retreats. Speaking of sub-tropical gardening in connection with this subject, it has always struck me that attempts in that direction are very often marred by the absence of water. Luxuriant foliage and half-aquatic subjects placed on dry knolls, or on trim plots on Grass lawns, are rather incongruous objects, but growing near the margin of water, and in a half-natural situation, they seem at home and are effective. In the otherwise wonderfully well-arranged grounds in front of the Trocadéro, at the Paris Exhibition, a singularly artificial effect was produced by the introduction of plants of the Egyptian Papyrus upon rising ground, considerably above the eye of the spectator—the last place in which one would have looked for such a subject.—*Field*.

The Cold Season.—According to *Nature* there have been, during the last 115 years, four other periods of protracted cold similar to that which we have lately experienced—that is to say, periods when the mean temperature of each month was below the average of that month for many months in succession without intermission. These periods were as follows:—1. A period of nineteen successive months extending from September, 1798, to March, 1800. The mean temperature during this period was 2·8 deg. below the average. 2. A period of seventeen successive months, extending from September, 1859, to January, 1861; mean temperature 2·2 deg. below the average. 3. A period of fifteen successive months, from October, 1815, to December, 1816; mean temperature 3 deg. below the average. 4. A period of fourteen successive months, from February, 1782, to March, 1783; mean temperature 4·4 deg. below the average. The more ample meteorological data now obtainable allow the distribution of heat or cold to be more accurately defined than formerly. During the past cold weather the cold in the British Isles was, it appears, most severely felt in the central part of England, within an area bounded by Stonyhurst, Shrewsbury, Cirencester, Oxford, Audley End, Yarmouth (Norfolk), Kelstern (Lincolnshire), and Durham. Within this area the mean temperature from December, 1878, to May, 1879, was 6 deg. below the average, and in some places more; at Cirencester it was 6·7 deg., and at Shrewsbury 7·4 below the average. In the central parts of Scotland and Ireland the mean temperature of the same period was about 5 deg. below the average. Everywhere the cold was less felt on the sea coast than inland.

Hiding a Light Under a Bushel.—The garden of St. Paul's Cathedral is like a light under a bushel, for it is enclosed with a heavy palisade that effectually screens it from view, and suggests that the ironwork is the proper adornment, and the garden a mere accident or makeweight. This is a common error in municipal gardening; at all events in London. Usually, however, we have a heavy and consequently opaque palisade, and within that a grimy Privet fence, and thus the passer-by sees nothing but the brown boundary and a few tree tops that show themselves above it. I shall once more refer to Queen Square, Bath, as a model in respect of such matters. There the passer-by can see the green sward and the elegant trees, and may even be deluded into the belief that he is walking through a garden.—*Gardener's Magazine*.

The Middle Temple.—Great improvements have been recently effected in the small but compact gardens belonging to the Middle Temple, more especially in that part which leads from the Thames Embankment up by the side of Garden Court, which now presents a remarkably pretty appearance, having been converted by Mr. Snelling, the head gardener, into a series of what are called "carpet" beds. The Temple fountain, rendered famous by Dickens in "Martin Chuzzlewit" as the meeting place of Tom Pinch and his sister Ruth, has also been renovated, and the basin will be planted with Water Lilies, while the beds surrounding it are already filled with fine-foliaged plants.

GILBERT WHITE'S GARDEN.

Romantic spot ! from whence in prospect lies
 Whate'er of landscape charms our feasting eyes—
 The pointed spire, the hall, the pasture plain,
 The russet fallow, or the golden grain,
 The breezy lake that sheds a gleaming light,
 Till all the fading picture fail the sight.

Gilbert White.

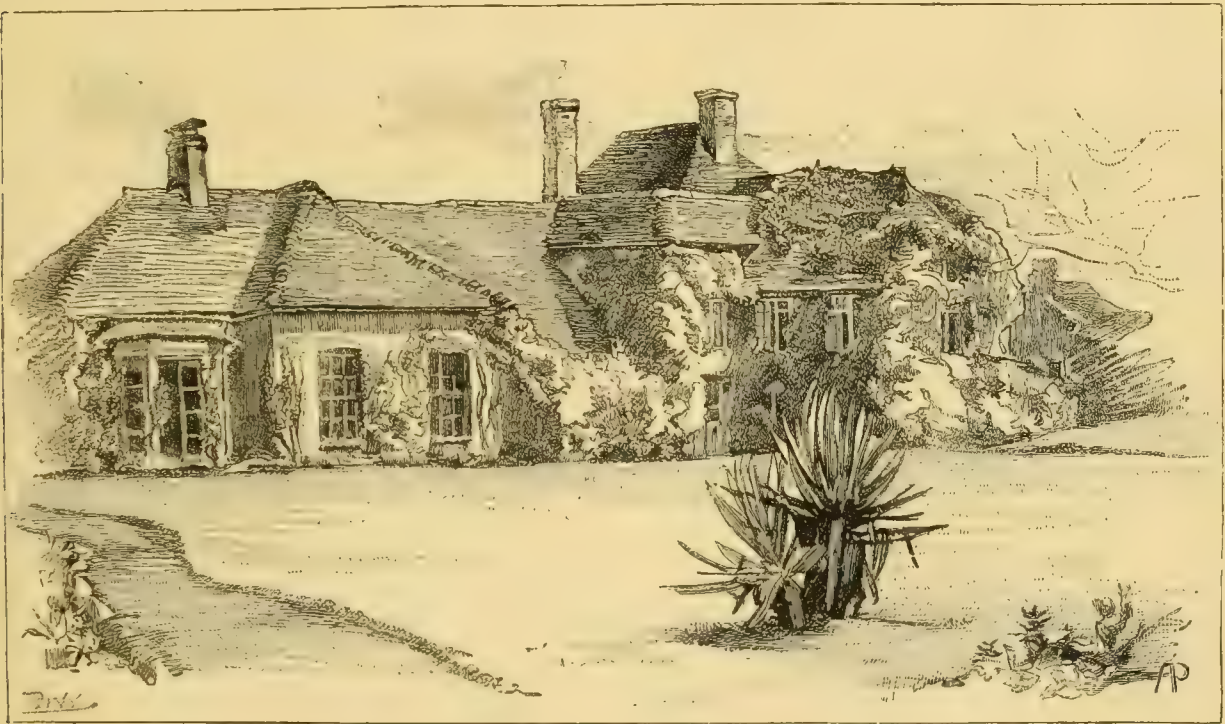
THERE must be few readers of the "Natural History of Selborne" who have not at one time or another experienced a curiosity to visit the dwelling-place of its accomplished author. Many doubtless have long since satisfied such curiosity, but there must be others to whom the neighbourhood of Selborne is still a *terra incognita*, and to whom, therefore, the following remarks may be acceptable.

A glance at the map of Hampshire will show that the village lies in the eastern corner of that county, bordering on

Walking leisurely along we here and there get a glimpse through some opening of a beauteous woodland scene or field covered by Hop-vines. Amid such rural scenes—amid so much that is pleasing and lovely, we are reminded of the lines of Clare :—

"Upon a molehill oft he dropt him down,
 To take a prospect of the circling scene,
 Marking how much the cottage roofs thatch brown
 Did add its beauty to the budding green
 Of sheltering trees it humbly peeped between.
 The stone-rocked waggon with its rumbling sound,
 The windmill's sweeping sails at distance seen,
 And every form that crowds the circling round,
 Where the sky stooping seems to kiss the meeting ground.

Crossing a bridge over the well-head we ascend a short rise and at once come upon the Plestor. In the centre of it, and surrounded by a wooden seat, stands a fine Sycamore ;



Gilbert White's Garden, (April, 1879).

the county of Sussex, and is easily accessible from Liss station on the direct Portsmouth railway, a pleasant walk of 5 miles. On reaching the village of Liss, which lies at a short distance from the station, we pass the "Blue Bell" inn on the left, and further on the "Spread Eagle," leaving which, also on the left, we come in view of the church. Like many of its class, this has been much added to in different styles and at different times, the modern brick porch ill according with the Norman stone windows. Quitting the church, and following the road to a toll-bar and cross roads, we take the road to the left, and soon approach another cross road, where a finger-post points "to Hawkley and Emshot." Choosing the Emshot road to the right, we follow a pretty lane to an old picturesque cottage standing almost in the corner of three cross roads ; continuing past this cottage, a winding road brings us to the village of Selborne, lying in a valley, and surrounded by woody hills.

while to the left, and close by the churchyard wall, is a large Horse Chestnut, the adjacent cottages being covered with Roses and Honeysuckles. Proceeding a few yards further the vicar's house appears, and beyond the churchyard gate. Entering this, the old Yew tree, which White so particularly notices, at once attracts attention. He gives its greatest measurement as 23 ft. in his day, but it must be now nearly 24 ft. The church is a primitive-looking building, with a heavy-tiled roof ; at the west end a square embattled tower 45 ft. high somewhat relieves its low equal appearance, but everything in and around is wonderfully clean and neat, and there is an air of sanctity about the place which checks the too exuberant spirits of the curiosity-seeking tourist.

Now, as in White's time, the south side of the churchyard seems to be the favourite resting place, but passing over many graves round by the chancel, we come on the southside to the last home of Gilbert White. All that tells the story is a simple

stone about 18 in. high and 15 in. broad, rounded at the top, with the inscription "G. W., 26 June, 1793." Retracing our steps back through the Plestor immediately to the right, we come to the residence of White. The house remains very much in the state in which White left it, excepting that a wing has been added at the west end by the present owner and occupier Mr. Bell. The grounds are probably in better order than when White owned them, although nothing characteristic of the former occupant has been destroyed. The brick-laid walk, the old sundial, the large Oak and the Cedar are still there, and we have only to imagine that the former venerable owner is, for the time, absent from home.

Again passing along the village, still much as it was in 1780, "a long straggling street," some houses thatched, others like the church with square tiles, we come to a path leading up to "the Zig-zag," and as we ascend a magnificent view of the surrounding country is obtained. This hill rises above the village about 300 ft., and is divided into a sheep-down, a high wood, and a low wood called "The Hanger." This wood consists entirely of Beech, and growing as it here does on chalk, attains a beauty rarely acquired elsewhere. "In a district so diversified with such a variety of hill and dale, aspects, and soils," wrote Gilbert White in his forty-first letter to Daines Barrington, "it is no wonder that great choice of plants should be found. Chalks, clays, sands, sheepwalks and downs, bogs, heaths, woodlands, and champaign fields, cannot but furnish an ample flora. The deep rocky lares abound with Filices, and the pastures and moist woods with Fungi. If in any branch of botany we may seem to be wanting it must be in the large aquatic plants, which are not to be expected on a spot far removed from rivers and lying up amidst the hill country at the spring heads."

To enumerate all the plants that have been discovered in the parish would be beside our present purpose. The reader may be reminded that White himself, in the letter just quoted, has given a short list of some of the rarer plants of Selborne and the spots where they are to be found, and this account has been supplemented by the late Dr. Bell Salter, who published in the "Phytologist" (Vol. I. p. 1132) a list of the flowering plants observed by him at Selborne during three days botanising in the month of September.

Sitting on the sheep-down we look around and over those scenes so faithfully described by White. In the distance is Woolmer Forest and Pond; close by to the right is Nore Hill, beautifully wooded; below nestles the quiet village; and far away stretches the lovely scene, till the view is closed by the horizon on the far-famed downs of Sussex. Nothing disturbs the solitude but the halting tinkle of the sheep-bells as the sheep move over the short turf. Looking down from this eminence the swift and swallow are seen sporting below as in the days of White; while from the woods the mellow notes of the blackbird and thrush ring out as they did eighty odd years ago.

How is it that with these simple materials Gilbert White has produced a book which is prized so much by young and old, by scientific and non-scientific readers? Doubtless because he described everything simply and truthfully; recorded only as facts such as could be proved to be such; and never forgot that one Hand only fashioned all the objects which it gave him pleasure and interest to observe, and that the same Power regulates their continuance or change. In his forty-ninth letter to Daines Barrington, he says: "It is now more than forty years that I have paid some attention to the ornithology of this district without being able to exhaust the subject; new occurrences still arise as long as any enquiries are kept alive." And this was written of a single parish! It shows very strikingly that natural history, when studied in

the way in which Gilbert White studied it, is no mere waste of time as too many suppose. H.

P.S.—Mr. Binney has now been Mr. Bell's gardener here for about thirty-five years. The garden was in a most charming condition at the time when we visited it at the end of April of the present year. It contained immense tufts of old double white Primroses smothered with flowers, and many double Rockets. As will be seen from the sketch, the lawn has been kept intact and has not been disfigured by formal flower-beds, and therefore forms a pretty foreground to the fine old house. When Mr. Bell acquired the property the garden was in a ruinous condition—in fact, quite a wilderness. With the exception of the Yew tree, and the Elm that stands at the north-west of the house, all the trees within the fence were planted by Mr. Bell. *Pinus Pallasiana* and *P. nigricans* were from small seedlings about 4 in. high; they have now attained about 30 ft. *Picea cephalonica*, planted at about 2 ft. high, is now rather taller than the former. *Abies Douglasi* is considerably upwards of 70 ft. *Sequoia*, Cedar of Lebanon, and several other species have made equally remarkable progress. *Populus alba* exceeds 100 ft., and every year throws out suckers to full that distance. The Maples far exceed, in point of height and size, any in the neighbourhood. One of the most remarkable trees is the *Ulmus montana*, which grows about 50 yards from the house, a somewhat particular account of which is given in a note at page 5 of the first volume of Mr. Bell's edition of "White's Selborne." V.

PROPAGATING.

Propagating Primulas from Root Cuttings.—At a meeting of the Scientific Committee of the Royal Horticultural Society at South Kensington, a letter from Mr. I. Anderson-Henry was read on this subject. "I have observed means by which Primulas may be propagated to any extent, and it strikes me that if it is unknown it might be worth communicating. I had raised from seeds sent me from Ladak and Kashmir a great many of the tribe, and as I could not accommodate them under glass, I caused them to be planted out in beds. They were of the *P. denticulata* type, and principally, I believe, the true *P. purpurea*. After having stood the winter, and having occasion for the beds last spring, I had them dug up and removed. I filled up their space with other plants more prized, and amongst these I now find the Primulas coming up like weeds. I find in digging them up that fibrous roots had been cut off, and from these have sprung the numerous progeny I now have to remove as weeds."

Propagating Verbenas.—When plenty of free healthy cuttings can be secured the propagation of Verbenas is an easy and satisfactory matter. Strong succulent shoots will under favourable circumstances emit roots in a short space of time, whereas if the wood is at all stunted or diseased the best of care will not ensure success. Cuttings made from unhealthy wood, even if they root fairly well, can never make robust plants. Many disappointments in the culture of this useful bedding plant might be traced back to a lack of vigour in the cutting. It is a great mistake to rely entirely upon the bedded-out plants for a supply of cuttings. The plants are just at their best when propagation should be begun, and the chances are that very few suitable shoots can be found. I have often experienced a deficiency in this way, more especially in dry seasons, and with such varieties as *Purple King*, which, like all other close-growing floriferous kinds, is apt to completely exhaust itself in flowering. A few plants of each variety planted by themselves in a rich piece of ground and kept well supplied with water, picking off the blooms as often as they appear, will as a rule furnish more and better cuttings than a whole garden full which have flowered in the usual way.—J. C. B.

Propagating Grape Vines.—I have raised thousands of Grape Vines in the following manner: Take a last year's shoot near the ground, dig a narrow trench 2 in. or 3 in. deep, bend down the shoot, fasten it with hooks on the bottom of the trench, and leave it until the sprouts from the buds are 3 in. long; then bury it and it will root at or near every bud. In autumn take it up and cut it into pieces, leaving roots attached to every piece.—*Country Gentleman*.

THE FLOWER GARDEN.

LANTANAS AND THEIR CULTURE.

LANTANAS are plants that bear trusses of flowers not unlike those of the cultivated varieties of *Verbena*. Their prevailing colours are pink, yellow, orange, and different shades of red; their blossoms emit a peculiar aromatic perfume agreeable to some, but disagreeable to others. Many treat *Lantanas* as stove plants, but that is unnecessary, as they succeed better in a greenhouse, and they are as easily cultivated as a *Pelargonium*. They may be readily increased by means of cuttings made of the half-ripened wood, which roots freely in a hotbed; they may also be raised from seeds which ripen on the plants when they are grown in a greenhouse rather freely exposed to the light, or if they are planted on a warm border out-of-doors the seeds may be sown as soon as they are ripe or in the spring. Sow in a hotbed or in a propagating house, using fine soil; the treatment of the young plants whether raised from seeds or cuttings is the same. Pot them off singly in small pots, and when they are 3 in. high pinch out the centre; this will cause a number of growths to start, when they may be repotted into 3-in. or 4-in. pots. The most suitable compost for them is turfy loam and turfy fibrous peat



Hybrid Lantana.

in about equal proportions, with the addition of a little leaf-mould and sand; they would not object to manure, but that induces an over-luxuriant growth. The pots in which they are grown should be well drained, and when they have become filled with roots abundant supplies of water must be given. If the cuttings be put in early, good-sized flowering plants can be obtained the same season, but the largest and best flowering plants are old ones cut down in the winter and started into growth early in the year. Good-sized specimens may be flowered in 8-in. and 9-in. pots. Those who can grow *Fuchsias* and *Pelargoniums* well would be equally successful with *Lantanas*. They also make a good border or bedding plant, producing flowers in abundance during the autumn months. In Mr. Fraser's nursery at Lea Bridge, *Lantanas* have been planted out close to a low wall belonging to one of the greenhouses, and there they annually make a very good display planted in the ordinary soil of the garden; they also succeed in ordinary loam cut from any pasture land if peat cannot be obtained for them. The effect of peat is to infuse into the foliage a dark, healthy green colour when grown in pots. The following are amongst the best varieties that have yet been raised, viz., *Adolphe Hoass*, *alba lutea grandiflora*, *Corbeille d'Or*, *Don Calmet*, *Souvenir de Pékin*, and *Vulcan*.

JAS. DOUGLAS.

NEW FUCHSIAS.

It has been observed that the *Fuchsia* has made little or no advance during the last few years, but that is a mistake. For instance, *Bland's New Striped* is in every way a first-class *Fuchsia*, and quite equal—in shape, colour, growth, &c.—to Mr. Banks's best; indeed, it very much resembles the well-known *Enoch Arden*, from which it must have been a seedling. The striped kinds have hitherto shown the markings in their corollas very faintly, but this presents a very bold, distinct, and regular stripe, and when seen in its best state it is the admiration of all beholders.

Jeanne d'Arc, by reason of the perfection of its unequalled flowers, leaves all those varieties with a white corolla far behind; its pearly-white is most lovely. In fact, it is in all respects a most charming *Fuchsia*, its corolla being very large and spreading.

Kingsburyana has something of the same character, but has a double corolla, which is very large and spreading. In this flower part of the corolla is attached to the calyx-tube; and in some flowers these parts are connected for quite half the length of the underside of the reflexed sepals. It is a strong grower and very showy.

White Giant is another somewhat similar to the preceding, with very large double flowers. This and Miss Lucy Finnis show a decided advance on all others in the class of varieties with white corollas, and they are now grown for market in great quantities, both in Europe and America.

Mr. Lye has added several very strong-growing sorts carrying very large racemes of bloom. Thus *Blushing Bride* is particularly striking, and may probably some day form a good-sized tree in some sheltered situations. It has a white tube and sepals, with scarlet corolla, and is in all respects a very good flower.

Lord Beaconsfield is a very strong-growing novelty bred from *F. fulgens*, and producing large bunches of flowers almost continually throughout the year, so that for cut flowers it is especially valuable; and although its colour is not very striking, it makes a capital outdoor kind.

Aurora superba is another very desirable kind, somewhat resembling the preceding, but with far more attractive flowers, which present a decided yellow shade not previously seen in the *Fuchsia*.

Ethel is one of the varieties with a pure white tube and sepals, the tube being most unusually long, often 3 in. or 4 in. in length, with well-reflexed sepals, and a bright lake-coloured corolla, which peculiarity, together with its long tube, gives it such a remarkably distinct appearance that few forget it who have once seen it.—H. CANNELL, in *Florist*.

A CHESHIRE LILY BED.

I HAVE lately been anxiously looking for something about Lilies from Mr. Wilson, whose notes published from time to time in the *GARDEN* have been my best guides in my attempts to grow these fine flowers. I ask you to allow me to state my brief experience, not so much for the guidance of other beginners, as in the hopes of eliciting some remarks from experienced growers which may be of general interest. My garden is cold and wet, the natural soil being stiff red clay; but I have done much to it in the way of drainage and artificial soil. I have made Lily beds under a wall facing south-east, on a raised terrace, moderately shaded and sheltered. The clay has been dug out to a depth of 4 ft., and the beds perfectly drained; my best bed, of which I now write, has been composed almost entirely of peat-soil, of average quality. The surface was planted, according to advice, with suitable evergreen shrubs, such as *Andromedas*, *Ericas*, &c. About these I may remark that *Erica mediterranea* looks very gay in spring, and *Menziesia polifolia* is now flowering well; though the white varieties of both of these are comparatively tender, and suffered last winter. I find the best Heath for appearance in winter, adapting itself as it does to any soil, to be *Erica vagans*. But the most satisfactory of shrubs in this peat border of mine is *Pernettya speciosa*: its gay pink shoots and glossy green leaves passed through last winter entirely uninjured, whilst *Laurustinus* and *Berberis Darwini* were killed to the ground in every part of my garden. It is now in full flower, and will soon be ornamented with berries; it grows fast, and may easily be trained in any direction by pegging round, rooting quickly at the layers.

But to return to Lilies: most of those in this bed were planted in autumn, 1877, or from pots in spring, 1878, and I only mentioned those of which I planted several bulbs. The species that seems inclined to monopolise the bed is *pardalinum*; bulbs which last year made a single stem with two or three flowers have this year increased to five or six stalks, with from five to fifteen buds on each. My

chief difficulty with this Lily is to save it from being broken by our violent westerly gales, which find their way everywhere. It is already 7 ft. high, and the stalks are very soft and fragile. If I tie them tightly to a stake the whorls of leaves carry up the tying material until it bends and breaks the stalk. If I allow the flowering head much play, the wind breaks it off. I find the best plan is to put bands of raffia round the stalk, allowing them to rest loosely on the leaves, and to tie them loosely round an iron stake. The band is then carried upwards with the growth of the plant, and slides up the stalk. L. Humboldtii seems to require more time to establish itself; all the buds of it live, but most of them make shoots about 9 in. high, which then go blind; about one in four have, in this their second year, made a stem not much thicker than the stalk of a clay tobacco-pipe, bearing five or six buds. They will probably do well, with patience. I am less successful with L. canadense; several bulbs which flowered last year have entirely disappeared; my stock is reduced to two or three marked "californicum" (which I am told is a synonym of canadense), bearing either a single bud or none. I planted monadelphum (Szovitzianum) rather largely; many of them are now in flower; they look vigorous, but few have more than one flower. I may remark that hitherto those in the peat flourish better than others planted in good loam; but the case may be different next year. I feel doubtful whether I shall succeed well with Lilium auratum; many bulbs flowered well last year, but look weaker this year, though none have died. They are just beginning to show their buds, and may improve in appearance before they complete their growth. L. superbum comes up capriciously. It was the latest to appear above ground. It shows some strong heads, though many bulbs planted have not come up at all. It must be very late this year in flowering.

Besides those mentioned, I have planted some other Lilies, but not in sufficient number to pass judgment upon them yet. I may remark, however, that I have failed to make any varieties of L. elegans grow, either in peat or loam. Perhaps this soil and climate are too cold for it. In this same bed with the Lilies, Trillium grandiflorum flowers grandly and increases rapidly. Cypripedium spectabile and C. pubescens have also proved hardy, and do well, but I cannot succeed with C. Calceolus. Gentiana acaulis makes a brilliant spring edging, and all the Dodecatheons feel at home. In conclusion, may I ask if some experienced grower of Lilies will tell me whether I am right in thinking that some Lilies, after transplanting, often remain dormant for a whole season? I was absent from home for two months of last summer, but I thought that I discovered in autumn that bulbs of L. Humboldtii and Szovitzianum, planted the previous autumn, had not come up, though they have made healthy growth now. Last autumn, however, I transplanted a large number of L. pyrenaicum, L. tigrinum, and L. candidum, many of which have as yet shown no signs of growth, though the bulbs seem healthy and sound. I have heard that some terrestrial Orchids have this habit.

C. W. Dod.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

A Roseless June.—Amid all the peculiarities of a season that has been unique and unseasonable throughout, the deprivation of Roses in June was one of the most peculiar and the most trying. Of course the term "Roseless" is used in a general and not an absolute sense. There were here and there a Tea, and perhaps in specially favoured localities an isolated Hybrid Perpetual or two; but throughout the great portion of the northern and eastern counties the month was Roseless as far as the Hybrid Perpetuals and summer Roses were concerned. Doubtless a fortnight's forcing weather will do wonders, but we could hardly force Rose-buds into blossom when they are as yet little more than formed. Roses, however, though late look promising. With the exception of a sprinkling of fat grubs and worms in the bud the foliage is clean and healthy, and the hardier varieties show a good head of incipient flowers. The Rose, in fact, seems to enjoy the rains almost better than most plants. While the incessant dampness has kept the foliage clean the shoots show no signs of mildew. The winter, so long and cold, told heavily upon some of the more tender, and these, unfortunately, as a rule, prove also the most rare and beautiful of the Hybrid Perpetuals. The mortality was heavy. Many of the Teas also suffered severely. The Maréchal Niel seems far hardier than most of the other Teas or Noisettes; Lamarque, Celine Forestier, and Devoniensis, for example, are nowhere in hardness beside the Maréchal. We find it the most useful to us as a standard. It never fails to flower well twice—sometimes three times—in the year. By having a few plants under glass, on walls, and as standards in different positions we may generally count on the Maréchal from February to November. It thus becomes invaluable, and the flowers are so different upon the different plants, varying so much in colour, substance, size, and even fragrance, that the Maréchal becomes as good

as half-a-dozen or more varieties. Celine Forestier is another Rose that takes a considerably wide range of form, colour, and size. How lovely it is, for example, delicately tinted or marbled with pink! how beautiful in clusters of buds of different sizes, from three to seven together! and how elegant as shown in single buds just half opened, that most charming of all conditions of Rosehood. But writing of a Roseless June, it is rather out of tune to go off in a rhapsody about the beauty, distinctness, or usefulness of any Rose in particular. There is, however, this excuse in the present case—these two, Safrano and the never-failing, never-killed Gloire de Dijon, are all the Roses that have yet opened freely with us in the open air.—D. T. FISH.

Cultivation of Linnæa Borealis.—To us this seems a very simple subject, inasmuch as little has to be done beyond planting healthy young plants in a moist sandy border or rock garden, or slightly raised bank. We have always seen the plant thriving freely as a sort of edging to masses of choice dwarf shrubs. Of course we refer to the districts where the air is pure and the soil is fitted for it. The following somewhat elaborate directions are translated in a contemporary: The principal conditions to ensure success are protection from strong winds, shade from the mid-day sun, and a constant and uniform degree of moisture of the soil. The necessary shade is easiest provided by placing the plants on the north side of a building or on the north slope of a hill. Uniform moisture is easily attained by removing 1½ ft. of earth and replacing it with potting mould and Pine leaves or Fir leaves, and the soil immediately around the plants should be covered with Moss. During prolonged droughts the plants should be watered; and to keep them secure against suffering from too much wet from protracted rains the ground should be drained by introducing stout, half-decayed Fir branches near the surface. Branches of Spruce Fir attached to a lattice framework form a good shade, and need renewing only about once in the summer. The best season for transplanting the Linnæa from its native haunts to the garden is the autumn, and it should be carefully lifted with a quantity of earth attached, and thus transferred to its destination. The seed should be sown as soon as ripe, as it quickly loses its vitality, especially if exposed in a dry atmosphere.

Zonal Pelargoniums.—The collections of these grown yearly at Chiswick afford admirable opportunities to observe what progress is being made by raisers in regard to the production of improved varieties, both for pot culture under glass and in the open ground. It is thus possible now and then to make selections of kinds that are not yet common or known to growers generally. Amongst deep-coloured varieties stands out prominently Charles IX., a grand rich scarlet-crimson of fine form, and carrying large trusses; this is a good pot kind, and altogether first-rate. Near to this is Titania, one of Dr. Denny's superb kinds, in colour deep rosy crimson, of fine form and exceedingly beautiful; this is an acquisition. Col. Seeley too is a beautiful variety of a brilliant rosy-scarlet, very distinct, free, and of fine quality. Of white kinds, a seedling of Dr. Denny's, not named, is a great improvement on all of that hue; it is very pure, of fine form, large in the pip, producing an abundance of trusses, and making a first-class pot plant; this kind must be looked for by all who grow zonals. In Lady Eva Campbell we get a very pleasing hardy salmon-carmine, allied to fine form and substance, a beautiful chaste flower and a good pot plant. Of pink shades, the richest, and evidently the best, is Mr. Leavers, one of Pearson's seedlings, in colour deep rosy-pink, and marvellously free. This half-dozen would make a valuable addition to any private collection, grown for exhibition or for house decoration.—A. D.

A New Variegated Myosotis (M. dissitiflora) has, says the *Irish Farmer's Gazette*, been raised in the garden of Mr. Percy and Lady Annette la Touche, at Newberry, in Kildare. It has maintained its character for two years, and has been extensively propagated, both by cuttings and division of the roots, so as to have been used largely as an effective indoor decorative plant, and for bedding purposes in the flower garden. The bold and elegant variegation of the leaves, the bright blue, with small yellow eye, of the flowers, the particularly neat and compact habit of the plant, and the facility with which it may be multiplied, combine to render it particularly suitable for bedding purposes. The plant was shown at one of the meetings of the Royal Horticultural Society of Ireland, and had a certificate and the Society's bronze medal awarded to it.

Arenaria balearica.—I hope that Mr. Wood (of Woodville, Kirkstall) will not take it amiss if I point out that he seems not to possess the above plant (*A. balearica*) at all; the description "it has glaucous foliage, and large white flowers possessing great substance," cannot apply to the plant in question. *A. balearica* is one of the most diminutive plants known, about one-fourth of an inch high, of an intense deep green, sprinkled with minute starry flowers; in fact, when seen clinging to the base of a wall, or creeping over a stove, it may be compared to a piece of green plush sprinkled with

silver spangles. I merely write to prevent any other plant doing duty for the plant in question. If Mr. Wood will send me a bit of his plant, I may be able to tell him what it is, and will send him a bit of the true *A. balearica* in return.—THOS. WILLIAMS, Ormskirk.

Eulalia japonica zebrina.—Last year I had a very vigorous plant of this *Eulalia* strongly developed with cross bands, or rather chevrons. This year the same plant shows nothing of the sort, but instead of the cross banding, a white stripe shows itself on every leaf. It may be difficult to account for this fickleness, but how does the plant develop itself in other gardens?—H. T. ELLACOMBE.

DOUBLE CLARKIAS.

CLARKIAS deservedly rank amongst the most charming of hardy annuals; they are robust in growth and branching, and they flower profusely for a long period. Curiously enough, whilst many plants



A Double Clarkia.

of this class seem all the worse for the production of double flowers, double Clarkias are an improvement on the single ones. There are three types of Clarkias—first, *Clarkia elegans*, a native of California, which grows about 2 ft. in height, and bears rosy-purple flowers. This generated the first double form, known as *Clarkia elegans fl.-pl.* From the rose-coloured single kind of this strain has also been selected *C. elegans rosea fl.-pl.* From these double kinds have been obtained two splendid varieties, viz., Purple King (deep purple) and Salmon Queen (salmon-pink), both having very large flowers that are freely produced on strong branching plants. These are remarkably effective border plants, and received first-class certificates at South Kensington in 1874. Another form is *Clarkia pulchella*, from North America, a kind which grows to a height of from 1 ft. to 2 ft. Of this also there are dwarf or Tom Thumb varieties. *C. pulchella* has magenta-coloured flowers, and from it have been selected forms having double flowers of the same hue; also rose and edged flowers. The third distinct kind is *Clarkia integripetala*, a garden hybrid or selection from *C. pulchella*, a sort which has entire-petalled flowers, of which also there are Tom Thumb varieties. Out of this have

come the new double crimson and white kinds, both very fine and good. We have, therefore, now in all some nine or ten double Clarkias. A. D.

VEGETABLE CULTURE FOR MARKET.

RADISHES.—The first two crops of Radishes of the year are generally grown amongst fruit trees, if bush fruits or Roses do not occupy the ground. By sowing time, which is in November and December, the trees are leafless and pruned; therefore they do not offer much shade to the young Radish plants, but rather protect them from cold winds and severe frosts, and before the trees have made much growth in spring the Radishes are fit for market, and the ground when cleared of them is available for being planted with Lettuces or other plants that are best suited for a shady situation. Crops of Radishes to succeed those under fruit trees are sown in open quarters, in 6-ft. wide beds with alleys between them. After sowing the seed is raked in with wooden rakes, and afterwards slightly covered with fine soil taken from the alleys. The surface of the beds is then rolled, and in the case of early sowings slightly covered with long litter, which after the seeds have germinated is removed on every favourable opportunity, but immediately replaced on the appearance of frosty, snowy, or stormy weather. After the second week in February coverings are dispensed with if the weather is at all likely to continue mild for a time, as the plants have by this time become strong and better able to stand the cold. The litter is, however, kept in the alleys in case of emergency until all danger from frost is over, when it is removed entirely and converted into manure. Successional sowings are made in February, March, and April, in a manner similar to that just described, and in some cases during the summer, but except in moist situations Radishes do not succeed well in hot weather; therefore where such situations do not exist sowing ceases in spring, and recommences in August and September if the weather be at all showery. A good crop of Radishes during the summer is profitable, and especially so in dry seasons, when they are comparatively scarce. The ground chosen for them is usually that recently cleared of Celery, French Beans, Rhubarb, or Vegetable Marrows, which, after being deeply dug and heavily manured, is levelled and otherwise prepared to receive the seed. Sometimes Radishes are sown between Asparagus ridges, and in such positions they succeed remarkably well on account of the soil being deep and rich. The chief varieties grown are the red Turnip and Long Salmon. A few of the white forms of these two kinds are also grown, but the red varieties form the bulk of the crop. When Radishes are required earlier in the spring than they can be obtained from the December outdoor sowing, they are obtained from frames placed on hotbeds, or trenches are dug out and filled with manure, on which a little soil is placed, and after sowing, the beds are covered over with litter. In March the first outdoor crops are usually ready for market. The largest roots are in all cases pulled first, the others being allowed to remain until they also become marketable. When lifted they are tied in fan-shaped bundles, each consisting of about a dozen roots, with bast or a thin withie, and when washed they are placed in baskets for market. Women, who usually perform this operation, are either paid so much per day, or receive from 1½d. to 2d. per dozen bundles, and at these prices, although they seem small, when there is full work they earn from 5s. to 6s. per day. Birds are the worst enemies with which the Radish grower has to contend, and when large quantities are grown it is found necessary to employ boys to scare them away, otherwise they would devour all the seed, and even pull up the young plants in order to obtain the husks which adhere to the young leaves. In May and June Turnip

Radishes are so plentiful as to be brought to Covent Garden in waggon loads.

CORN SALAD OR LAMB'S LETTUCE.—This plant, which is often called "Mache," is grown to some extent by market gardeners. The seed is sown for succession crops from August to October, the result being a supply from October till spring. There are two kinds grown—the Round and the Regence; the former is considered the best for winter use, but it runs to seed earlier in spring than the latter kind, therefore the Regence is sown in October for a supply after the Round kind has run to seed. The land on which the seed is sown is of a rich character, and in many cases it is sown broadcast among winter Onions or some similar crop for which the land has been liberally manured and otherwise well prepared. No more preparation is needed beyond raking the surface before and after the seed is sown. In gathering, the plants are pulled up by their roots, washed, and sold amongst mixed salads in small punnets. Most growers save their own seed, which is found to be better than that which can be purchased. For this purpose a bed is specially prepared, levelled, and made fine on the surface, after which it is rolled or otherwise pressed down firmly. Good plants from the general sowing are then selected and planted thickly, and the bed is afterwards kept free from weeds. In summer the seed which ripens is allowed to fall on the bed, after which the old plants are pulled up and the seed is carefully swept off the hard surface and placed in water to separate it from the soil, which sinks to the bottom. The seed is then dried gradually in the sun and put in bags and into a dry place, and under such conditions it will retain its vitality perfectly for several years. Corn Salad is not considered of itself a paying crop, but when sown amongst other crops it takes up but little room and therefore in such cases may be considered to be fairly remunerative.

MUSTARD AND CRESS.—These are grown to a large extent in beds made on the floors of Vineries, a portion being sown and a portion cut every other day. During February and March the floors of such Vineries remind one of a verdant pasture, so green and so healthy do the crops of Mustard and Cress in various stages of growth appear. After sowing, a good watering is given, and the beds are covered with mats until the seeds have germinated, when they are immediately removed. The Mustard and Cress are cut when they attain a height of $1\frac{1}{2}$ in. to 2 in., a long-bladed knife with a crooked handle being used for the purpose. With this implement in one hand the operator cuts as much at a time as he can hold with the other, which is about as much as will fill a punnet; he then deftly takes the cut material up with both hands and places it in an upright position in the punnet. So precisely do practised hands perform this work that one would almost imagine the Mustard and Cress had been sown in the punnets. During January, February, and March Mustard and Cress fetch from 2s. to 4s. per dozen punnets, but later on they become much cheaper. Rape is often sold for Mustard. It is mild in flavour and, perhaps, equally wholesome; it is also stiffer, and keeps longer in good condition in a cut state than Mustard. On hotbeds out-of-doors, in temporary frames, and in warm moist borders, Mustard and Cress are grown in enormous quantities, some using as much as 500 bushels of seed in one season, and £2 or £3 worth of punnets per week while the Mustard harvest lasts.

WATERCRESSES.—Of all esculents used as salads this is the most important, but in London market gardens its culture is limited on account of there not being suitable places for it. Watercresses are said to have grown in a wild state on the banks of the Thames and other places near London for many years before their culture for market was attempted on any-

thing like an extensive scale, and there being then little demand for them the supplies from these quarters were sufficient; but as they gained popularity in France, Prussia, and elsewhere, so the demand for them in London also increased, and beds for their culture were formed at Springhead and Northfleet, near Gravesend, as far back as the beginning of the present century. What quantity of Watercresses is now consumed in the metropolis it is impossible to tell, but Mr. Horace Mayhew calculated that 14,958,000 bunches were sold in the course of 1851. Of this amount the street hawkers alone disposed of £13,949 worth. On an average they disposed of 5s. 6d. worth per week each, on which the profit was about 3s. 6d. This estimate of the Cress trade in London does not, of course, take into account the amount brought in directly from the country and disposed of in other ways. As the population of London has so vastly multiplied of late years, the amount now consumed must be much greater, and is daily on the increase, as people are beginning to learn the true value of this wholesome esculent; although the calculation, as just stated, was made early in the present century, Springhead Cresses are still noted for their superior quality. After these beds were started, and the produce obtained from them was found to yield remunerative profits, similar places were soon made where suitable situations existed round the metropolis, and it is estimated that there are no less than 10,000 bunches of Watercresses disposed of in London daily. Large supplies are now obtained from Waltham, Cheshunt, Uxbridge, and other low-lying places near the Great Eastern Railway, and the annual amount realised by growers for London alone is very great. The space at Springhead allotted to Watercress culture is about three acres in extent, and consists of a winding ditch varying in width from 6 ft. to 20 ft. The supply of water is furnished by numberless springs of fresh clear water, which bubble out near the banks of the stream in various places, and form themselves into a little rivulet. The water contains a good deal of iron, and on the sides of the Cress-beds, where it is somewhat stagnant, the Cress assumes a much more unhealthy colour than that in the middle of the stream. The Cress-beds at Springhead lie in a warm sheltered valley; the sloping banks on either side the stream, which appear to be exceedingly fertile, are covered with fruit trees, such as Apples, Plums, &c.; and Lettuces thrive well near the water. The Watercress is re-planted yearly, generally in August and September, and sometimes in spring. Tufts of the roots are taken up and pulled apart, and planted in rows about 1 ft. apart, after which they are trodden or rolled down, with a view to induce the roots to take quickly. The water is just deep enough to cover the roots, and when fully grown the young shoots in summer represent a miniature meadow of healthy green Watercresses. Cutting is practised three times a week, as many being cut at a time as the markets require. Cutting the Cress is performed by men, who with leather boots to knee, walk in the beds, and with a long knife chop off the most forward of the Cress about 9 in. long, and place it in baskets in such a manner as to allow of a circulation of air through the baskets, in order to prevent the Cress fermenting. Before being placed in the baskets the Cress as cut is dipped overhead in the water, which keeps it fresh until it gets to London, when the purchaser afterwards keeps it well wetted as long as it remains in his possession.

CHICORY AND WITLOOF.—Chicory, though a useful winter salad plant, is not grown so much near London as one might expect it to be. Nevertheless, when taken up in winter and forced, it furnishes an excellent salad. The seed is sown in drills 18 in. apart in a light open situation. When the seedlings appear they are thinned so as to be left 9 in. apart. In

winter the roots, which resemble those of a Parsnip, are lifted and placed in a warm corner in the dark, when they soon throw up a large white crisp head. Sometimes the seeds are sown in heat, and when the plants are 4 in. or 5 in. high they are kept in the dark under straw or mats, and, when well blanched, are cut and placed in small punnets for market. Witloof, which is closely allied to Chicory, is likely before long to become a good market salad plant, on account of its easy culture. Seeds of it are sown in June in deep well-manured soil, and when up the young plants are thinned to 6 in. apart. Early in winter the plants are lifted as required, and after having their leaves cut off near the crown they are replanted thickly in trenches 12 in. deep. These trenches are then filled up with litter; in a month or so the crowns start into growth, and when 6 in. high, are white and crisp, and ready for market. When better known this plant will no doubt be more largely grown than Chicory, on account of its superior quality.

DANDELION.—This is not grown to any great extent, although in the spring it may be seen in the market in a blanched state in the form of small plants with their roots attached. It is sown in beds and blanched by being covered up for a few weeks previous to being dug up.

HERBS.—All kinds of herbs are extensively grown in market gardens between fruit trees and on spare pieces of ground not available for other crops. The principal supply of herbs for distillation and drying purposes is grown at Mitcham in Surrey, and in Hertfordshire—indeed there probably are within 30 miles of London upwards of 1000 acres of land devoted to herb culture. Nearly all herbs are bunched and sold in a green state, and taking up, as they do, little room, they travel to market along with other things and are in some seasons very remunerative.

SPEARMINT AND PEPPERMINT.—These are largely grown both for distillation and drying, particularly the latter; near Mitcham many acres are occupied by it. The roots are planted in the first place 1 ft. apart each way, and at the end of the two following seasons it is ploughed in, and afterwards kept clear of weeds by constant hoeing. In August the green stems are cut and taken to the distillery. The culture of Spearmint is chiefly confined to market gardens round Fulham, Gunnersbury, and Isleworth. Mr. Humphreys and Mr. Dancer, of Fulham, have both large pieces of ground devoted to it. The dampest piece of ground is usually selected for Mint if it is to be a permanent plantation. The roots are planted in rows 1 ft. apart, and the space between them is intercropped during the first season, but afterwards the ground becomes such a mat of roots that intercropping is impossible. During the Pea season enormous quantities of green Mint are disposed of in London, and early in spring when Mint sauce is in demand some growers devote large ranges of glass pits to its culture. Mr. Elliot, of Fulham, has several long ranges of heated pits which are planted with Mint roots in succession, to yield a good supply from early in the year until green Mint becomes plentiful out-of-doors. During severe winters this crop is a fairly remunerative one, but in mild seasons it sometimes happens that it can be had out-of-doors as soon as the last pit comes into use, and thus the time and labour of growing it under cover are lost.

SAGE.—This is not in such general demand in a green state as Mint, but in nearly every market garden a plantation of it may be observed in some out-of-the-way corner, where the roots often stand undisturbed for years. At Mitcham, however, large areas of land are devoted to its culture, and new plantations are frequently being made, it being considered under favourable circumstances a fairly remunerative crop.

Both the red and green leaved kinds are grown. Young plants are obtained by dividing the old roots in spring; they are inserted in rows from 1 ft. to 2 ft. apart each way, after which, if they continue in a thriving condition, no further attention is paid to them until late in summer, when the stalks are all cut off, tied in bunches, and disposed of at once. When blanks occur in the rows through the plants becoming sickly, the whole plantation is broken up and replanted.

PARSLEY.—This is grown to a large extent in some market gardens, whilst in others none can be found. The seed is sown in successional batches from March to August in rich soil, and generally where the plants are to remain, transplantation being considered detrimental to its producing good foliage; it also induces the plants to run to seed sooner than they otherwise would do. When up, the young plants are thinned out to a proper distance apart by means of hoes, and some growers protect a large bed of it during winter; but, as a rule, this kind of treatment is not considered sufficiently remunerative to be carried out on a large scale.

THYME.—The green and golden leaved varieties of Thyme are grown in spare places in market gardens; by some growers the latter kind is considered to be the best, because it grows better than common Thyme. The roots are divided into small pieces and planted between fruit trees, or as edgings to borders, where the soil is firm and solid—positions in which they succeed well and yield abundance of tops for bunching for market.

CAMOMILE.—This is a crop extensively grown at Mitcham, many acres of land there being occupied by it. In March old worn-out plantations are broken up and the plants divided into small rooted pieces. These are planted in well-prepared ground in rows 2 ft. apart each way, the intervening spaces being cropped with Lettuces or other esculents, which can be quickly got off the ground. It is, however, not an uncommon practice to plant Camomile plants as thickly again as those just mentioned, and afterwards to thin them out to the required distance asunder. As the blooms expand they are picked off by women, who receive 1d. or 1½d. per lb. for gathering them, a process which is continued as long as sufficient flowers are produced to be remunerative. When gathered the flowers are laid out in a shady but airy place to dry, after which they are put into canvas or paper bags and disposed of.

SQUIRTING CUCUMBERS.—These are grown for distillation alone, which is usually done by the growers themselves. They are raised from seed, sown in frames similar to those of Vegetable Marrows or ridge Cucumbers. About the end of May they are planted out-of-doors in light rich soil, in rows from 4 ft. to 6 ft. apart each way. The fruits are gathered before they are fully ripe, a condition in which they are liable to burst, and thereby become useless.

WHITE POPPIES.—These are grown at Mitcham on rather a large scale. The seed is sown in rows 2 ft. apart in spring; when up, if necessary, the plants are thinned out a little, and the ground is kept free from weeds, but beyond these operations no other attention is paid to them until August when their seeds are ripe. The heads or capsules are then carefully gathered, placed in bags, and disposed of to chemists and herbalists.

LIQUORICE.—This is not so extensively grown now as formerly, the expense incurred in its cultivation being such as to render it at times anything but a remunerative crop. Still large tracts of land at Mitcham are devoted to it. Ground intended to be planted with Liquorice is heavily manured, trenched, and thrown up in winter in rough ridges. In the

spring following the ridges are levelled, and the ground is marked off into drills 3 ft. apart and 4 in. deep. In these the sets (consisting of small pieces of the old root-stems each containing an eye or two) are planted. During the first year and a half after planting the ground is intercropped with Lettuces, Coleworts, &c., but after that the Liquorice requires all the room. In the autumn of each year the matured stems are cut off close to the soil, and the ground between the rows is forked over and, if need be, manured. The crop is usually lifted in the end of the third season after planting, and the labour and expense incurred in this operation are very great. On this account growers seldom lift Liquorice themselves, but sell it as it stands, leaving the purchaser to harvest it. In order to extract the roots, which penetrate deeply, it is necessary to dig out a deep trench close alongside of the first row, and then by the aid of steel forks or ropes the roots are extracted. If the roots be not required for use at once they are stored away in sand or earth pits like Carrots, Beet, and other root crops.

BORAGE.—This is grown in temporary frames out-of-doors for supply during autumn and winter, and for spring use seedlings are raised in heat and transplanted into glass-covered frames, which can be easily removed when the weather is sufficiently mild to admit of the plants being exposed without injury. It is sold chiefly to hotel keepers for making claret-cup.

C. W. S.

CREEPERS IN WINDOW BOXES.

WINDOW gardening has of late years made great progress, and one needs no other evidence than a glance at the windows of rich or poor in town or country to see to what perfection plants may attain in boxes, and how well they repay the care and attention bestowed on them. But while the majority of subjects grown require to be inside the windows, there is also a hardy class of plants suitable for growing outside in cases in which plants inside would not be admissible, or would interfere too much with internal arrangements. We have here for all the upper rooms of the mansion slate window boxes resting on iron brackets, and an ornamental wire trellis encircles each window, to which the permanent creepers are trained. I should also add that we have iron rods a few inches above the edges of the boxes, that make a neat looking balustrade, and support the dwarf plants in pots, which in such positions might otherwise be blown down. These dwarf plants are varied according to the season; but the climbers, to which I am desirous of specially referring, are permanent. For spring we use hardy bulbs such as Snowdrops, Aconites, Crocuses, Hyacinths, and Tulips; surfacing the ground with Forget-me-nots, Silenes, Arabis, Aubrietias, &c.; when these fade they are removed, and are replaced by a wider range of plants, such as taste may suggest. We use Ivy-leaf and other Pelargoniums, Lobelias, and Golden Feather Pyrethrum, varying each window as much as possible. For the winter season nothing equals very dwarf shrubs, such as Euonymus, Thuja aurea, and dark-leaved Berberis in the form of sturdy dwarf bushes about 1 ft. high. These look cheerful during all kinds of weather.

The climbing plants which I find most suitable for our purpose are variegated Ivies, which keep their colour better than when they have much root room, and also golden variegated Honeysuckle. The evergreen Honeysuckle is likewise an excellent plant for boxes, and the yellow and white Banksian Roses are extremely well adapted for window decoration, as is also Jasminum nudiflorum, which, although partially deciduous, makes up for that defect by having in a warm sunny aspect more or less of its bright yellow flowers, each as large as a shilling, expanded all through the winter. Cotoneaster and Pyracantha, neat close-growing plants that have cheerful berries in winter, are useful in boxes, and indeed I may extend the list indefinitely, but will only name a few which I have myself tried and found suitable for the purpose. During the growing season, in addition to keeping the plants well supplied with water, they should be frequently tied in as growth progresses, and some of the older wood should occasionally be removed, as the majority of flowering climbers do best when an annual supply of young wood is retained. When removing the dwarf subjects a little fresh soil should be added to the boxes, in order to maintain the vigour of the climbers that root so freely. Window plants would grow equally well in wooden boxes,

but they often decay just as the window gets properly furnished; slate boxes are therefore the most efficient and cheapest in the end.—J. GROOM, *Linton Park, Maidstone.*

PLATE CLXXXVIII.

AMARYLLIS O'BRIENI.

Drawn by CONSTANCE PIERREPONT

THIS lovely and distinct section of the genus *Amaryllis*, in which there are three varieties, is the result of considerable care and perseverance, extending over a lengthened period. The seed-bearing plant *Hippeastrum pardinum rubescens* (a variety of fine form, substance, and colouring) I could never succeed in setting with its own pollen, but at last I was recommended to use that of *Amaryllis reticulata major* (syn. *striatifolia*), and the result was that the flowers set, the pods swelled, and ultimately seed was ripened. On examining the latter a curious fact revealed itself; the seed on the *Hippeastrum*, which should have been flat and scaly, had, through using the pollen of *Amaryllis reticulata*, become so changed that it resembled large, somewhat thick, jet black grape seeds, rather than those of a *Hippeastrum*. Apropos of the change of form and colour of seeds through the influence of foreign pollen, I may mention another case: I once crossed *Amaryllis reticulata* with pollen of *A. procera* (a blue-flowered species), and the seeds that resulted were quite round, and as large as small peas. Seedlings of *Amaryllis O'Brieni* having been obtained, we imagined that all difficulties had been overcome; but that was not the case, for during the first three years they did not seem to increase at all in growth, and were indeed many times even on the point of dying; but whenever that was apparent they were turned out of their pots, and repotted in good fresh compost, in which they revived. At the expiration of the three years they however began to grow vigorously, and soon flowered; and since then they have proved themselves to be even more robust and more free-flowering than most other *Amaryllises*; indeed, we have never lost a bulb of this variety.

Amaryllis O'Brieni, like *A. reticulata*, should be grown in a warm house and not put away to rest along with the deciduous *Amaryllises*; on the contrary, it should be watered, even after the foliage has died off; it should be potted in a mixture consisting of half turfy loam and half peat. It generally flowers twice a year, is very fragrant, and lasts an incredibly long time in bloom, a property possessed by many plants which refuse to bear seed.

To the section in which *Amaryllis O'Brieni* may be placed, and which includes plants that grow best without being rested, belong the following, viz., *A. reticulata*, *A. O'Brieni*, with its varieties *delicata* and *rubescens*, three hybrids raised between *H. pardinum rubescens* and *A. reticulata major*; also *A. Henry Little*, a cross between *A. picta* and *A. reticulata*; *A. vittata striatifolia*, raised between *A. vittata* and *A. reticulata*; and *A. Pirloti*, raised between *A. gandavensis* and *A. reticulata*. All these have white bands down the middle of the leaves.

JAMES O'BRIEN.

[Our plate was prepared from a plant which flowered in Messrs. Henderson's nursery, Pine-apple Place, Edgware Road.]

Shortia galacifolia.—This highly interesting and rarest of North American plants is now in blossom in one of the greenhouses at the Botanic Garden, Cambridge, Mass., where it is an object of great attraction. It is a sweet little plant, not showy by any means, but a welcome garden Alpine. It is about 4 in. high, with Galax-like leaves, both as regards form and colour, and pure white bell-flowers, borne singly on stems 3 in. high. In 1778 Michaux discovered a *Pyrola*-like plant in the mountains of North Carolina, and secured the specimen, which was in fruit but not in flower, for his herbarium. Beyond that specimen, not another vestige of the plant, dead or alive, was known to exist till last year (1878), when it was re-discovered growing on a hillside in North Carolina, and specimens were then sent to the Cambridge Botanic Garden. Long before its re-discovery it was earnestly but unsuccessfully hunted for by Dr. Asa Gray and others; and even now so much importance is attached to the long-sought mountaineer, that a special company of botanists from here are to visit it in its native wilds as soon as its flowers open in the spring. A nearly-allied species, namely, *Shortia uniflora* (*Schizocodon uniflorus*), was discovered not long ago in Japan.—WILLIAM FALCONER. [The imperfect specimen of this plant preserved by Michaux was first found in examining the herbarium of that author by Dr. Gray in 1839, and, notwithstanding its imperfection and the fact that no other plant of the kind could be found after diligent search, Dr. Gray ventured to designate and describe it in 1842 as a new genus.—*Country Gentleman.*]



GARDENING FOR THE WEEK.

Flower Garden.

Auriculas.—Letters from the north state that "Auriculas are looking remarkably well." Mr. Simonite, of Sheffield, writes, "It rains every day; we have high winds, and the nights are bitterly cold, nothing does well but Auriculas." Now just a hint as to the green healthy appearance which Auriculas now wear. It certainly shows that the plants are healthy, but it is just possible that over luxuriance may induce an autumn bloom, and that the plants may not winter any the better for it. They are taking a short summer's rest at present, and it is well to avoid any undue excitement. Keep the frames cool and draw off the lights always except when there is some danger to be apprehended from rain; do not water unless the plants really require it. I am alluding to specimen plants. In the case of seedlings and offsets the best way is to keep them growing as freely as possible. Water freely and keep the lights over them at all times, potting the plants as they require it. It is satisfactory to hear that many of the northern growers are raising seedlings. One of them, I am told, has thousands from good crosses. It will not say much for our intelligence in this direction, if we cannot surpass George Lightbody, Smiling Beauty, Glory, Freedom, Colonel Taylor, &c., which have been in cultivation before most of us were born. At any rate our florist forefathers have by their skill and zeal brought Auriculas up to such a high standard of excellence, that it is difficult indeed to equal, much less to surpass, the results obtained by them.

Carnations and Picotees.—Within the last ten days or so I visited two gardens in London, one a large public one, where I saw some half-dozen men attending to a few beds, on a small space, geometrically arranged and filled with Sedums, Feverfews, and Alternantheras. The other was an amateur's garden, which he managed himself; it was full of beautiful Carnations and Picotees, I may say thousands of them, and I was tempted mentally to ejaculate "Look on this picture and on that." Though carpet beds are fashionable is it fair that all the space and all the labour should be given up to them? Beds of seedling Carnations can be obtained at a very small cost, and they are emphatically a town flower. Seedlings should now be pricked out on a level piece of ground, made smooth by sifting some fine sandy loam over it. Prick the plants out about 3 in. apart, to be ultimately planted at distances of 12 in. from each other.

Dahlias.—In some districts these are not yet planted out, and no wonder, for cold cutting winds and dashing rains have been making sad havoc amongst such as have been so planted. A note from Manchester last week informs me that a hail-storm cut and bruised their leaves in such a way as to utterly destroy them. Our own, planted in a sheltered situation, have not suffered much, and are growing freely; some of them have thrown out too many side growths, but we have removed all except three or four and the leading one. I trust those who have not put their plants out have potted them into sufficiently large pots, so that the plants are not root-bound; they ought certainly to be out now. Slugs are a great nuisance this year, but they must be destroyed by hand-picking, dusting the ground with soot or quicklime, or anything likely to kill them. Earwigs have also appeared, but these can be secured by placing Bean stems (open at both ends) amongst the plants; the enemy shelters in them at night, and can easily be dislodged and killed next day.

Pinks.—These are now coming into flower; their blooms are of full size and well laced, and the plants are now making good growth. If pipings have not yet been put in, no time should be lost in doing so.

Pansies.—It is interesting to learn that this useful flower is becoming popular, and also that a special exhibition is devoted to it. There does not seem to be much danger of any of our fine hardy plants going out of cultivation. Little good can be done by means of the hoe amongst Pansies now; pick out the weeds, however, by hand, and peg down the shoots, removing, at the same time, all superfluous growths.

Polyanthuses.—It is questionable which is the best time to pot these, viz., July, August, or September. Growers about Newcastle-upon-Tyne are very enthusiastic as regards the culture of Polyanthuses, and one of the best of them writes to me to say that the end of July is the best time to re-pot; others say August, and others much later. It seems feasible that the best time to re-pot is when the plants start into growth, which they do in July, and I should suggest potting at that time so that the plants may be well rooted before winter. Let the soil be rather heavier than that recommended for Auriculas. Seedlings should be planted out in the place where they are to flower as soon as it is convenient to do so.—J. DOUGLAS.

Stove.

The late sunless spring has had its effect on plants under glass, the growth of which, should the temperature have been kept by fire-heat to anything approaching that which would have existed with the ordinary amount of sunny weather we have through April, May, and June, will in many cases have a greater tendency to the production of wood than the formation of flowers. Consequently, most summer-blooming stove plants have been later in flowering than I ever recollect seeing them, and with those that naturally bloom in the later months the condition is similar, to counteract which dispense with shading, as far as possible; give a little more air during the day, even if the weather continues such as to necessitate some addition of fire-heat to admit of this, without which the shoots have a disposition to keep on extending to an undue length before the flowers are formed. This especially applies to late-started Allamandas, Aristolochias, Dipladenias, and the like. Stove plants, unlike others grown in a lower temperature, can scarcely be said to have any particular season for potting, and where any, either large or small, give evidence of requiring more root-room, there need be no hesitation in giving this, even with most plants that are forming flowers or even in bloom; but in all cases where potting is carried out with plants in an active condition of growth, as these necessarily now are, there should be no disturbance of the roots more than requisite to remove the old drainage material. Should the weather become hot the small diminutive yellow thrips, so minute in size as to often escape detection by those who have not had much experience with this class of plants, is almost certain to make its appearance on such plants as Allamandas and Crotons, both of so crude and poisonous a nature that it has always been a mystery to me why this insect should prefer their juices for its food to those of other plants. With this thrips fumigation is completely useless; it gets down into the points of the shoots to the very base of the young, newly-formed leaves, where there appears to be enough stagnant air to prevent the smoke entering. A continual application of the syringe is the only means I have found of keeping it in check; weak Gishurst will destroy all it comes in contact with, but it increases so quickly and is also so agile that if you move a plant with a view to dipping or washing it, half the insects appear to get on to the adjoining plants before it is possible to succeed in getting the mixture to touch them. For this reason I have found soot water the best remedy; it may be prepared and used in a clear state much as in the case of lime water when applied to the soil for the destruction of worms, or it may be syringed on to the plants with a little of the soot actually stirred in with it, allowing it to remain on for a few days. The latter method I have sometimes found the most effectual, as this with all other insects has the greatest aversion to the actual presence of soot: a syringing with soapy water and afterwards with clear water will remove any trace of the soot from the leaves. Where many stove plants are grown, particularly of large size, and especially climbers, it will during this and the next month require constant attention to keep insects in check, without which it is useless to attempt the cultivation of many of the finest subjects we possess that need heat more or less continuously to grow them. I feel the necessity of frequently pointing to keeping plants clear from these animal-parasites, the preventive measures against, and destruction of which, occasion considerably more than half of the whole amount of labour required to keep stove or intermediate house plants in a condition capable of bearing that clean, healthy foliage, and producing bloom to the full extent of which they are capable, as wherever we see plants grown under a system that for a time leaves insects of any description to get to a head before anything is done for their destruction, the means employed usually result in the loss of half the flowers which they would otherwise bear.

Begonia fuchsioides.—This most beautiful and distinct old plant, so long left in comparative neglect, appears to be now more grown than it was. It is very easy to manage, although new hands at its cultivation frequently, whilst getting it to grow freely, fail in blooming it satisfactorily, the cause of which is generally traceable to its being kept in too close and moist an atmosphere. Plants struck from cuttings put in during the winter or early spring, kept growing on freely with the strong shoots pinched back once or twice, but not so as to interfere with its elegant branching habit, should now be in their flowering pots, which may be seven or eight inches in diameter; it is not well to overpot them, though it must be borne in mind that the larger the plants the more flower they will bear, provided the management is such as to induce the free production of bloom. It is frequently seen flowering in the summer, but when this is the case it may usually be set down to accidental treatment, as it is much more useful through the late autumn or in the spring. The plants should now occupy a small house or pit with their heads close to the roof, and have little or no shade unless absolute burning of the foliage takes place, plenty of air, gradually increasing it during the next month, and a drier atmosphere than some plants require; in fact, it is

well at this season to put this and any other subjects that need the air in a drier condition than the generality of stove plants by themselves.

Tabernæmontanas.—Where white, sweet-scented flowers are required for bouquets or similar floral arrangements, there are few plants that furnish them equal to these. In appearance they are much more delicate than a *Gardenia*, inasmuch as their crisped, irregular petals are less formal, the single and double forms respectively being not unlike the ordinary decorative white Pinks and Carnations with toothed petals. The reason why these plants have not been more generally grown is no doubt due to the disposition they have, when not properly treated, to drop their buds to a greater extent than *Gardenias* when these are kept in too moist an atmosphere; plenty of light, not too high a temperature, and more air and little shade, suit them best. Old plants that have been cut back after flowering last autumn or winter, partially shaken out, re-potted, and grown on, will ere this have bloomed or now be coming into flower, according to the way they have been treated. They are deserving of being grown in sufficient quantities to give a succession of flowers, and are most useful kept in moderate-sized pots; they are somewhat spare rooters, and do not like too much room. If a portion of the plants had their points nipped out in the spring they will come into bloom now; after they have done flowering large plants may be again cut in, as there is nothing gained by letting them get too large. They will root any time when half-ripened shoots can be had; cuttings of such put in now and grown on will bloom well in 6-in. pots next spring or summer.

Shrubby Clerodendrons.—These, including the fallax, *Kämpferi*, and fragrans forms, will in most cases have finished their first blooming; *C. fallax* and the others of similar habit make useful plants grown from seed, flowering with single stems the year after they are so raised. Where they are to be increased in this way, one or two of the bloom-stems may be allowed to remain and the seed to ripen; the berry-like seeds assume a black colour when ripe and part freely from the stem; they should then at once be sown either in small pots or a pan in sandy peat or loam—it is immaterial which. Plants that have bloomed will flower a second time later on, provided they are not headed back further than cutting out the bloom-stems.

Hoyas.—The bushy-growing forms of these, such as *H. bella* and *H. Paxtoni*, are much the most useful; they are excellent plants for hanging baskets; their delicate-tinted, waxy flowers are also beautiful for cutting. Unless where grown very cool they will by this time have completed their flowering; if a second bloom is required this can generally be secured by putting them in brisk heat, so as to get further growth which will flower in September, after which the shoots should be well shortened in, or they will get too long and straggling.

Impatiens Jerdoniæ and alba.—These most free-flowering, dwarf-habited plants are amongst the most interesting stove or intermediate house subjects in cultivation, but like many others that require some little difference in their treatment from the general occupants of these structures, we now scarcely ever see them, which is so far a mistake, as plants so totally distinct in their habit and general character as these are, independent of their individual beauty, tend so much to increase the interest attached to the collection with which they are associated. They are easily struck and just as easily grown, provided they meet with the treatment they require. To do any good with them, except in the very lightest houses with the atmosphere kept somewhat drier than an ordinary stove, they must be hung up close to the glass, where they will receive constantly all the light and air possible; if the pots or moderately deep pans in which they are placed are plunged in Moss in wire baskets, they are amongst the most beautiful objects that can be grown for use in this way, their singular-formed, almost transparent flowers being thus seen to the best advantage. If the baskets are draped with one of the pendant, small-leaved *Tradescantias*, so arranged they are very effective. The plants make comparatively little root and must not be over potted; the soil (either peat or loam will do) should be light, with plenty of sand and some crocks added; a little chopped *Sphagnum* will do no harm; they must never be over watered. The present is a good time for putting in cuttings—good-sized bits of the shoots, which, from their succulent nature, should be taken off and put in with a heel; they will do half-a-dozen together in 6-in. pots in a mixture of sand and peat or sand and loam, with a bell-glass overhead, but not closed down as is necessary with cuttings of most kinds, and the material should be only just kept slightly moist, or they rot, which established plants also do at the collar if treated in the way in which ordinary stove stock succeeds. But hung up as I have advised close to the glass, where if anywhere in the structure there will be motion in the atmosphere, the disposition to go off in this way is generally avoided.

Medinillas.—Medium or large-sized plants of these, especially the strong-growing *M. magnifica* and its erect-habited flowering

variety, to induce them to bloom freely need somewhat drier treatment than ordinary stove subjects so as to get them well ripened. Those that flowered early and were afterwards either cut in or not, will by this time have made considerable growth; if they have not already occupied the lightest and most airy position in the house they should be removed to this, shading no more than is found necessary to keep the leaves from burning, and gradually inuring them to less water at the root, yet not carrying this so far as to allow the plants to flag much, otherwise it will result in a loss of leaves. These fine distinct plants are frequently objected to, except for big houses, on account of their disposition to grow to a large size, but they naturally are such free flowerers that they will bloom in quite a small state, and from their being so easily propagated there need be no difficulty in dealing with them, as a few can be struck from cuttings each year, grown on, and flowered for two seasons, and then either headed down or discarded to make way for smaller ones. Cuttings will root at almost any time of the year in heat covered with a bell-glass, in their case not kept too close or the soil too moist, and where more plants are required these may be put in now.

Gloxinias.—For ordinary purposes these can be raised yearly from seed, and where a good strain of this is at command the plants from such a source are all that need be desired; but where it happens that more than usually fine varieties exist either from seed or otherwise it is well to increase them by cuttings made from leaves in the usual way. If the kind is scarce a single leaf will make three or four by notching the midrib at the underside, laying it flat on a pot or pan filled with sandy peat, $\frac{1}{2}$ in. of the top all sand, and putting on the surface of the leaf, over each incision made on the underside, a pebble about the size of a pigeon's egg to keep the cut parts in contact with the sand. They need to be kept slightly but not too moist; in this way they will form small bulbs in the course of the summer; but where the leaves of the kind or kinds to be increased are plentiful, larger bulbs will be obtained by putting each leaf in as a cutting, simply inserting the stalk end to the extent of $1\frac{1}{2}$ in. in the soil.

Torenia.—The favour with which the beautiful old *T. asiatica* was first received when it came into the country, but did not long retain, and the little estimation in which the later introduction of these easily-grown continuous-flowering plants are held may be accounted for by the fact that the unceasing demand for cut flowers (for which purpose they are of very little use) has compelled cultivators to limit themselves in a great measure to such things as will stand the longest in a cut state; yet this has been carried so far as to divest the majority of plant-houses of the interest attached to subjects of a distinct and handsome character. These *Torenia*s are equally suitable for growing in pots slightly trained in an erect position, or suspending in baskets and allowed to droop. I never found them to succeed so well the second year as they do the first after being raised from cuttings, as they frequently do not break well when cut close in after blooming, and unless so treated they become straggling and unsightly. If cuttings are put in now, choosing shoots that spring from the base not much disposed to flower, struck singly in small pots, which they will readily do, kept warm, moist, covered with a bell-glass, and shaded, and as soon after rooting as requisite moved into 4-in. pots, kept stopped, and in a position where they will grow slowly through the autumn and winter, they can then be potted on, and will make handsome decorative plants early in spring, blooming through the summer if well treated.—T. BAINES.

Indoor Fruit Department.

Pines.—As soon as the weather becomes sufficiently favourable to admit of the plants being placed in the open air for an hour or two, these will require a general overhaul both as to repotting, top-dressing, and cleansing of the pits and houses in which they are grown; all the heating material of whatever kind should be turned out bodily, in order to dislodge vermin and clear the drains, and where the bottom-heat is obtained from hot-water pipes, their coverings should be removed, and the pipes examined, freeing them from soil or other matter that might intercept in any degree the heat from being fully communicated to the bed. In replacing the plunging material, whether tan or leaves, caution will be required lest a too violent heat be engendered, a circumstance likely to occur if the bed be entirely composed of new leaves or tan; therefore it is best to mix some of the old material—about a third—with the new, a practice which will obviate all danger. After the plants have been placed in the new heating medium very little fire-heat will be necessary, though if the weather still continues sunless, fires will have to be kept going to prevent a stagnant state of the atmosphere, as it is impossible to give air freely without fires, and unless air be now given liberally, the plants will become drawn, and the result will be the production of second-rate fruit. Fruits swelling off require abundance of water, but even at this period of the year it should be heated;

indeed, Pines in any stage of growth should always be supplied with water of at least the same temperature as that of the soil. Syringe overhead on warm sunny days when closing the ventilators, which should be done early in the afternoon, as the temperature may at this stage be run up to 90° or 95° with advantage, and so save night firing. The suckers obtained from the earliest ripened Queens will now be ready to shift into their fruiting pots, and in order to induce a stocky fruitful growth, give them plenty of room; as soon, too, as the roots have taken hold of the new soil, give air freely, and never allow them to want for water till growth is completed, and, as it were, requires to be consolidated, though even then anything like real dryness will be the forerunner of poor "shows." Pot another batch of the strongest suckers obtainable, which should have a moist atmosphere, and be partially shaded, but the soil should be kept on the side of dryness till the plants are rooted, when they may be treated in every way the same as established plants.

Vines.—The more than usually vigorous condition of Vines this season having their roots entirely in outside borders is calculated to teach us a valuable lesson, viz., that Vines require enormous supplies of water. We have during recent years been learning this, but a practical test is this season forced upon us, and to my mind, taking into account the lack of sunshine and warmth, the balance is decidedly in favour of the heavy rainfall. Of course, if borders are improperly drained opposite conditions may be expected, but speaking personally and from the state of the Vineries under my charge, I consider the abnormally heavy rainfall to have been beneficial, and this enforced lesson will lead to a still more liberal use of water on borders that are effectively drained. Rain-water tanks should be placed in all Vineries having inside borders, and as at this time of year the soil does not require to have warm water, the tanks should be emptied on the borders after very heavy rains, not only to economise the labour of pumping, &c., but because rain-water is in every way preferable to well water. Keep the surface mulched with 1 in. or 2 in. of stable litter, both for the sake of neatness and for that of inducing surface-rooting by the preservation of an equable state as regards moisture. Should a sunny period set in, which is much to be desired, scalding is sure to be prevalent; Lady Downes, Mrs. Pince, and Muscats are most liable to this occurrence, and the only preventive is to maintain a high night temperature, with the ventilators slightly open to prevent condensation of moisture, and during the day the ventilation must be as liberal as that given to greenhouse plants, till all danger from scalding is over, a period which usually lasts from ten days to a fortnight, according to the state of the weather. A season like the present upsets much of the usual routine, and that of dispensing with fires in July will not this season have to be regarded, as late Grapes, to keep well, should be fully ripe before the end of September, and without firing such cannot be the case this year. Husband sun-heat whenever it comes by closing up early, but aim by every means available to have the Grapes fully matured ere September is out. Keep lateral growths within reasonable bounds; if there is room for them on the trellis without crowding, let them remain, but not to the injury of large leaves, or the screening of wood and bunches from the light. Recently planted Vines intended for a permanency should have all the growth which they make left intact, but supernumeraries intended to fruit next season must be subjected to a moderate amount of restriction, by stopping the side shoots at the third or fourth joint from the main stem. Keep them free from red spider by syringing freely when closing up the house in the afternoon. Where Grapes are colouring, let air remain on night and day, but of course in proportion to the state of the atmosphere and temperature outside. The more time given Grapes to colour, the more perfect will it be. Do not scruple to water them freely even now if there be any danger of their suffering from drought before the fruit is consumed.

Peaches and Nectarines.—The remarks formerly made as to the necessity of well washing the trees and thinning out the shoots that have produced fruits as soon as all are gathered, are as applicable to succession as to early houses, and the borders need just the same amount of attention with regard to watering as during the earlier stages of growth. Trees swelling off heavy crops of fruit should be assisted by the applications of strong doses of guano water, if the borders are inside; if outside, sprinkle guano over them and the rains will wash it in. Continue to syringe with soft clear water till the fruit indicates maturity; then discontinue it, and decrease the atmospheric humidity. Pinch out the points of all shoots bearing fruit, and also the side shoots of the current year's wood intended for fruit-bearing next season. Expose ripening fruits to full daylight, without which good colour and flavour are unattainable. Gather the fruit before it is dead ripe, and it will keep longer and be brisker in flavour.

Strawberries.—In order to obtain satisfactory results as regards the forcing of these, attention must be paid to them all the

yearround. We finished layering runners for plants to fruit next season on the 2nd inst., and as yet we are gathering fruit from plants in houses, none being yet ripe in the open air. Our best runners are those that have been produced from the earliest forced plants, which were hardened off and planted in the open air on April 25. Good runners have also been obtained from young plants that were set apart for this purpose and planted last August, but these are not so early by at least a fortnight as those from the forced plants; hence, in future, arrangements will be made to secure all runners from the earliest-forced plants only. The runners will be severed from the parent plants as soon as they are well rooted, and will be at once potted into their fruiting (6-in.) pots. The plantation will then be cleared of runners, and the soil surface forked and mulched with 3 in. or 4 in. of manure, and then a good autumn crop of fruit will be rendered certain, at all events from Vicomtesse Héricart de Thury, for this kind is quite as valuable for autumn fruiting as it is for early forcing.

Melons.—Provided the outlet is free, and there is no danger of any part of the border becoming sodden, give abundance of water to swelling fruit. A notion prevails that Melons require water at long intervals only, but though they often survive and even fruit under such treatment it cannot be called good cultivation, seeing that the foliage gets either eaten with red spider, or else smothered with mildew, and the fruit produced is, in consequence, flavourless; for unless the foliage keeps good and able to perform its functions till the fruit is perfectly ripe, good flavour is impossible. Therefore, after the fruit is set, the one great aim in Melon culture should be keeping the foliage in a healthy condition, and this cannot be done unless the soil is kept moderately moist throughout the whole of the growing season. Plant out a last successional batch, and any old plants that are being allowed to fruit a second time should be occasionally watered with a weak solution of guano water. Stop all laterals at the first joint beyond the fruit, unless there is plenty of space in which to lay them without overcrowding, in which case they may be left any length.—W. W.

Kitchen Garden.

In this district (North Hants) all vegetable crops are quite a month later than usual, but all, without exception, are looking well. From William I. we have gathered quantities of super-excellent Peas. Veitch's Ashleaf Potatoes are also excellent, but not a heavy crop; they require warmth. Dwarf Erfurt Cauliflower and Early London are both good. Asparagus has never been so fine or so tender as it is this year, thus showing what a moisture-loving plant it is. We have now discontinued cutting, and have given the beds a dressing of salt and guano in order to compensate in some measure for the excessive demands made upon them through the lack of other vegetables early in the season. Hoeing for the destruction of weeds has been impossible, owing to the constant succession of showers which we have had; weeds therefore abound, but they must be pulled up ere they seed or endanger the well-doing of the crops by causing a spindly growth. When weeding is done let the surface be broken by means of prong or cultivator in order to prevent it from cracking should a dry period set in. Breaking up the crust will also conduce to the more kindly growth of the crop. As soon as early Peas and Potatoes are removed let the ground be prepared for Autumn Giant Cauliflower and early Broccoli, such as Snow's, Osborn's, and Veitch's Self-protecting. If well trenched for the Peas, Potatoes, &c., no other preparation will now be necessary beyond simply levelling and cleaning the ground, and giving it a sprinkling of guano or soot to be washed in by the rains. Ground cleared of Cauliflowers may be used for early Peas or for Spinach and Lettuce, each of which should now be sown in order to ensure a good autumnal supply. The practice of planting Broccoli and Winter Greens generally between the rows of Potatoes is not a good one, but where ground is limited it is sometimes unavoidable, as it is in our case this year, but as the rows of Potatoes are a yard apart no real harm will be done to either crop. Savoys, Kales, and Brussels Sprouts have all had to be thus planted, but late Broccoli will be planted on ground now occupied with mid-season Peas, Broad Beans, and Strawberry plants; meanwhile the plants are pricked out on a border with a north aspect, and will be transferred to their permanent positions as soon as possible. A good breadth of Early Horn Carrots should now be made on a warm, dry border; these small Carrots are much preferred to larger ones, and without much difficulty they may be had fresh from the ground all the year round. Sow Cabbages for the main autumn planting, and Coleworts for winter and early spring use. Lettuce, Endive, and Radishes should also be sown, the latter about once fortnightly up to the end of August. Black-seeded Bath Cos is a fine Lettuce for present sowing, being thoroughly hardy and well withstanding the autumnal frosts and rains. The weather has been too cold for Vegetable Marrows, ridge Cucumbers, and Tomatoes, none of which have yet made satisfactory progress, and there is no means of aiding them beyond keeping the surface

soil stirred and the growths well trained out and protected from the boisterous winds which we are having, and which remind us more of November than July.—W. W.

THE LIBRARY.

THE ORCHARD HOUSE.*

OF this work, begun long ago by Mr. Thomas Rivers and now carried on by his son Mr. T. Francis Rivers, the sixteenth edition has just reached us, in which is given the most recent experience in orchard-house culture at Sawbridgeworth. Mr. Rivers's first orchard house was built in 1850; since that time many have been erected in one form or another in different parts of the country, and all of them, we believe, have more or less answered the purpose for which they were intended. Nevertheless, some are still doubtful as to their utility, and for the consideration of such doubters Mr. Rivers publishes the following results produced in a house 100 ft. by 24 ft., the size only of a moderate Strawberry bed :—

Forty pyramid Peach and Nectarine trees, 8 ft. to 10 ft. high, each 2 dozen	.. .. .	= 960
Twenty-eight ditto 3 ft., each 1 dozen	.. .. .	= 336
Sixty-seven half-standards, 4 ft. to 6 ft., each 1 dozen	.. .. .	= 804
Twenty ditto large, each 2½ dozen	.. .. .	= 600
Fifteen ditto Apricots, large, each 3 dozen	.. .. .	= 540
Twelve ditto small, each 1 dozen	.. .. .	= 144
Six standard trees, Peaches planted out, occupying the space of 4 pyramid trees in pots, each 6 dozen	.. .. .	= 432

Or nearly 4000 fruit. 3816

The house from which these results have been obtained has been built about fourteen years, and has produced a like crop during all that time, many of the trees being twenty years old, so-called good and bad seasons having no influence whatever on the produce. Mr. Rivers states :—"I have little to add to the rules of cultivation, which must be in a measure stereotyped, but I have seen reason to somewhat modify the summer pinching, which I thought necessary at one time for all trees. I still think it is necessary for very dwarf cultivation, but if the house is sufficiently large for trees 8 ft. to 10 ft. high, I think that more latitude may be given. Pyramid trees, the most beautiful of all when well grown, do not require the close and incessant pinching requisite for dwarf bushes."

Of all fruit trees grown in orchard houses Plums, perhaps, succeed the best. We therefore extract the following on Plum tree houses :—"After some years of experience, I have found that Plums are very easily grown in pots. It is well known that Plum trees in our climate bloom so early in spring as to be much injured by our spring frosts; it may safely be asserted that a fair crop of Green Gages, away from walls, is realised but three years out of seven, even in the south of England, but two years out of seven in the midland counties, and seldom or never in Yorkshire. Now, I propose that for those who wish to grow a regular and certain crop of Plums without incurring a heavy expense, rough-built, lean-to, or boarded span-roofed orchard houses should be erected in some out-of-the-way corner of the premises, consisting of Larch poles, rough ½-in. boards, with two or three sliding shutters for ventilation; in fact, merely a glass-roofed shed on purpose for protecting Plum trees in pots while in blossom and setting their fruit. It is surprising with what vigour and beauty Plum trees blossom even in the rudest glass structure, and as the trees need not remain in the house longer than the end of the first week in June, for then all danger of severe spring frosts is over, they may be placed so close together that a house 20 ft. by 12 ft., with a path in its centre, will hold ninety-six trees, forty-eight on each border. The trees may be planted in 13-in. or 15-in. pots, and treated exactly as other orchard-house trees, with this difference—all the trees having young fruit should be removed from the house on June 7, and placed in rows or otherwise in the garden to ripen their fruit in the open air. The pots may be plunged in the soil one-third of their depth, but not more, for if the roots are too cold the fruit will suffer in flavour, and if the soil in which they are plunged be wet and cold, it should be drained or made porous, so that the water may pass from the pots rapidly; the top-dressing of manure must be most abundant. As a matter of course, the very late Plums must be ripened under glass, but all those varieties that ripen in the open air before the beginning of September may be placed there to ripen their fruit, which they will do perfectly; regular annual crops may thus be ensured if care be taken to thin the fruit properly. If too large a crop be extorted, the tree will take a year's rest. It is quite astonishing how prolific pyramid and bush Plum trees become in a few years, and, by merely pinching off the ends of all their shoots to three leaves, they soon form themselves into compact trees,

and very ornamental when grown as pyramids and placed in an avenue leading to the house for their summer quarters.

"The best varieties for this extended mode of Plum cultivation in pots are the Early Prolific, the Czar, Early Orleans, the Early Transparent Gage, De Montfort, Early Green Gage, Transparent Gage, Denniston's Superb, Green Gage, Angelina Burdett, Kirke's, Guthrie's Late Green, Reine Claude de Bavay, Purple Gage, the Coe's Golden Drop, the Grand Duke, and above all, the Jefferson, one of the most beautiful and delicious of Plums. These are for the desert, but, as in some climates it may be necessary to grow Plums in the same way for culinary purposes, I may as well give the names of a few good kitchen Plums, such are the Victoria and Autumn Compote, both large and excellent, ripening in succession, the Diamond, the Early Orleans, White Magnum Bonum, the Mirabelle, Prince Englebert, and the Sultan. The trees must all be removed to the orchard house the last week in October, top-dressed, watered, some hay placed over them to protect their roots from frost, and then kept dry all the winter. I may add that as Plums are coarse feeders I take the surface earth out in autumn to the depth of 6 in. at the side of the pot, sloping upwards to the stem, so as to be able to give them a large quantity of fresh compost.

"By those who wish to grow Plums under glass in large quantities, another very simple mode of culture may be practised—viz., planting a house with pyramids or half-standards, and removing them biennially to check their growth. Half-standard Plum trees are most prolific and very convenient to manage. One of our most skillful gardeners treats them in this manner, and finds that, after a few years, owing to the trees being every season loaded with fruit, they do not require removal as they grow very slowly. When cultivated as pyramids in the orchard house, they should be managed and pruned as directed for Apricots; they should, however, be pinched to three leaves instead of five as recommended for Apricots, and when cultivated as bushes, summer pinching to three leaves will be found by far the best method of pruning."

The book (crown octavo, consisting of 266 pages) is well printed, and contains several woodcut illustrations, and in addition to chapters on the different fruit trees suitable for orchard-house culture, it contains a good monthly calendar. M.

TOWN AND WINDOW GARDENING.*

THAT a large and exhaustive work might be produced under such a comprehensive title as that which has been given to this book, our own columns have from time to time proved. The importance of window gardening and town planting cannot be gainsaid, and it is an absolute duty of all who have it in their power to encourage a love of plants, especially amongst the poorer or working classes, not only for the sake of relieving the monotony of the exterior of rows of brick and mortar in our busy centres, but also, and more particularly, for the purpose of enlivening, beautifying, and making more attractive the too often squalid homes of our labouring people. Whether the book before us will fulfil the mission for which it is intended, and help to "inspire little children with a love of flowers," is, we think, doubtful, for it aims at too much—more, indeed, than a child or an uneducated mind can grasp. In such a book the principal endeavour should be to induce people to love plants for their own sake, for their general beauty or outward attractiveness. The "habits" of plants would here legitimately come in, but the "structure" and "uses" might well have been reserved; thus in considering a grain of corn in the first lecture on p. 7 we read that the "cells contain starch and a living substance called by a long and difficult name, *protoplasm*," which the authoress further states is "a most wonderful substance." As the authoress has evidently had the well-being of the citizens of our crowded alleys at heart, it would be ungracious to multiply faults; we may, however, be pardoned if we direct attention to one that may receive correction should another edition be called for. At p. 142, under the head of "Fine-foliaged Plants for a Room in Winter" we are told that *Dracenas* and *Bignoniæ* are members of the Lily family. We suppose the authoress intended to write *Begonias*, which are, however, as far removed from the Liliaceæ as the *Bignoniæ* themselves. But let us rather direct attention to some of the good points in the book as showing that the authoress has really good taste and the power to train young minds in the right direction. On the subject of leafless trees in winter she says, "I often think I admire them more without their leaves, because then you can see the shape of their branches which look so delicate against the sky." Again, Mrs. Buckton loses no opportunity in recommending to the notice of her hearers or readers the beauty of wild plants, or those generally considered not to be worth growing. Q.

* "The Orchard House" (of Thomas Rivers). Sixteenth edition. Edited and arranged by T. Francis Rivers. London: Longmans, Green, & Co. 1879.

* "Town and Window Gardening;" A course of Sixteen Lectures given out of school hours to pupils, teachers, and children attending the Leeds Board School, including the structure, habits, and uses of plants. By Catherine M. Buckton. London: Longmans, Green, & Co.

THE INDOOR GARDEN.

PROLIFICATION OF NYMPHÆA RUBRA.

THE case of proliferation of which we are about to speak occurred in one of the hothouses belonging to the Museum of the Paris Jardin des Plantes in 1878. This phenomenon, so far as we know, has never happened before in plants belonging to this Order, once more showing how special characteristics are produced in plants, and the spontaneity with which they appear. We must remark, however, that this spontaneity should in no way surprise us, seeing that it is constantly manifested in all directions. No doubt it is the effect of the action of some unknown law, the results of which we are pleased to call "accidents," "anomalies," or "sports." Prolifcation of this kind appears to be produced accidentally in a variety of genera, belonging principally to the Composites, especially amongst the Daisies and Marigolds, but which has rarely been seen in other Orders in which, as in the *Nymphæa*, the flowers are solitary. We have, however, a kind of proliferation in the old-fashioned Hose-in-Hose Polyanthus, to be seen in almost every cottage garden in the south of England. The *Nymphæa*, although it has been growing where it is for a lengthened period and flowers abundantly every year, has never hitherto produced anything but normal flowers. Last

CULTURE OF THE SCARBOROUGH LILY.

VALLOTA PURPUREA, the so-called Scarborough Lily, is too well known to need description. It is one of the few Cape bulbs—of which so many were formerly grown in English gardens—that have retained a hold upon public estimation. Appreciated, however, though it may be for its decorative value, it is nevertheless a fact that it is seldom seen grown to that degree of perfection which its merits deserve. This remark applies more particularly to large establishments, where it is when out of bloom too often relegated to some obscure corner, and consequently fails to obtain that amount of encouragement which it should receive. Such neglect is undeserved, and many plants now occupying prominent places in our glasshouses do not so well deserve them as does this Cape bulb. Amateurs and window gardeners are more apt to cherish it, and one often sees better grown plants of it in a cottager's window than are generally found in large gardens.

Although the *Vallota* will live and even bloom tolerably well under circumstances which would prove fatal to many plants, it nevertheless fails to develop its blossoms in perfection if not liberally treated. Single bulbs of it well grown in 6-in. pots are valuable for decorative purposes; but the true beauty of this plant is not seen unless it is grown in the form of large specimens. Like most bulbous plants, it requires to be seen in masses; the effect which it

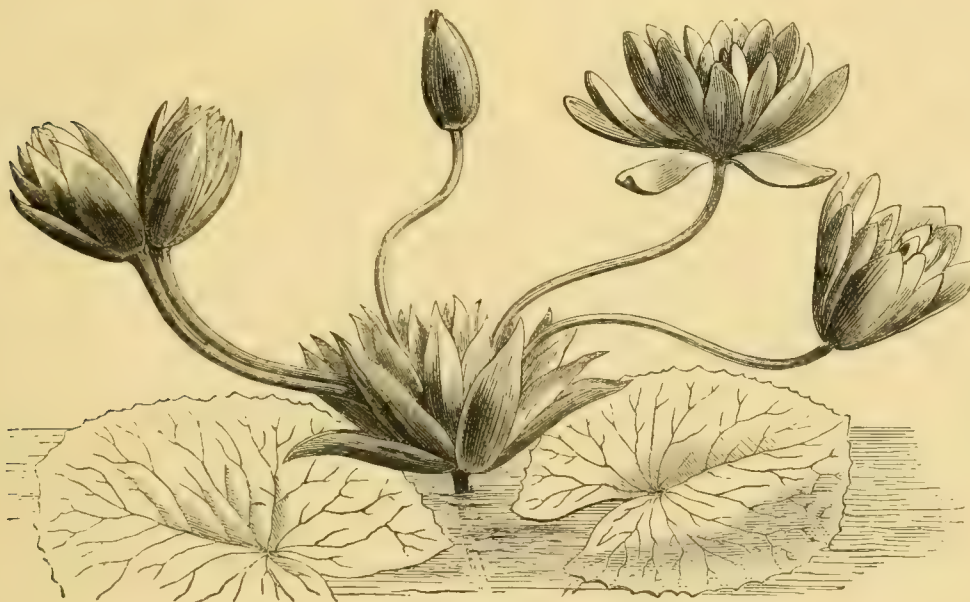


Fig. 1.—Prolifcation produced by a *Nymphaea rubra* (one-quarter the natural size).



Fig. 2.—Prolifcation and budding of a *Nymphaea rubra*.

year, however, two flowers presented the phenomena shown in the annexed illustrations. Fig. 1 shows the stalk ending in a flower, which at first appeared to be quite normal, but in course of time five secondary peduncles, of which two were united along the whole of their length, began to develop, and finally budded and flowered, as shown in the illustration. This phenomenon closely resembles, nay, appears to be identical with, that seen in the familiar Hen and Chickens Daisy. Fig. 2 shows an analogous phenomenon to that which we have just described, but is even more complex. We shall watch this plant with attention to see if the same phenomenon is reproduced next year. Although we may somewhat justly consider this as exceptional and a monstrosity, we must remember that this fact is in no way contrary to the fundamental principles of evolution. The sepals, petals, bracts, stipules, &c., of a flower are after all only modified leaves, therefore we cannot be surprised if one or any of them be produced in or out of their usual order, according to the condition and strength of the plant.—*Revue Horticole*.

Tradescantia mundula.—This makes a good basket plant. It does not, I believe, often bloom, but I saw a large plant of it the other day in a greenhouse quite covered with delicate white blossoms, very like those of a myrtle.—A. P.

then produces is truly grand. What renders it especially valuable is the fact of its blooming at a time when the generality of plants are out-of-doors and when showy plants are especially desirable for the conservatory and dwelling-house. A very fine effect may be realised by placing a dozen good bulbs of it in a 12-in. pot. When thoroughly established each bulb will throw up a strong spike crowned with from five to eight handsome flowers, the effect of which once seen can hardly be forgotten. Without doubt, one of the main secrets in *Vallota* culture is to allow the bulbs to become thoroughly established. This plant appears to dislike frequent shifts, and never flowers so freely and strongly as when in a root-bound condition. The main point to observe is to supply plenty of food during the growing season; from the time the plants start into growth until they come into bloom they will derive much benefit from regular bi-weekly waterings of guano, soot, or manure-water of any kind. If the plants be placed in a saucer they may, with great advantage, receive in hot weather a little sub-aquatic treatment; not requiring much shade, and having the pots crammed with roots, which appear to possess exceptional powers of suction, it will be understood that means must be adopted to supply when needful an unlimited amount of moisture. By placing the pots in pans the best facility is afforded of giving them what they require; indeed this treatment would appear to be a fair imitation of the conditions in which this plant is found growing naturally. I have been informed that the bulbs are

mostly found growing in well-drained sunny positions, but where the roots only find their way into a damp sub-soil. In such situations, under the influence of a hot sun, they pass through a vast amount of moisture, thus enabling them to so solidify their tissues that a grand display of bloom is the result. I think that if we desire to grow this Cape bulb to perfection, we shall find that a maximum of heat, air, and moisture is necessary to ensure success. Many do not achieve good results in the culture of this really beautiful plant from the fact of not realising that they have to do with an ever-green.

The *Vallota* should never be dried off; as the winter advances the supplies of water have, as in the case of most other plants, to be diminished, but moisture at the root must never be entirely withheld. A certain amount of foliage should be left to draw up the sap, and start the bulb into fresh growth again early in the spring. Another important consideration is light during the winter months. I have invariably found that those bulbs which enjoyed a maximum of light during the dull months of the year flowered much the best. The bulbs being encased in leathery folds, there is a danger of water finding its way amongst them, and rotting the bulbs. If only a few drops of water trickle down into the base of the bulb and remain there in damp weather, rot is almost sure to follow, and decay progresses in such a rapid manner that the bulb is ruined in a few days. It is very vexatious to thus lose good bulbs. I have therefore made a practice of placing each plant for the winter in a saucer, by means of which sufficient water to prevent the bulb or foliage from shrivelling can be administered without having to moisten the surface soil. Where any quantity of bulbs are grown, a succession of bloom may be kept up by placing a portion of them in warmth in early spring, small plants forming the best of subjects for room decoration during the summer months. The gracefully-disposed flag-like foliage, and the bright star-like blooms, to which the arrangement of the heavily pollen-loaded anthers lend additional grace, contrast in the most admirably effective manner with Ferns and most other foliaged and flowering plants. With respect to soil the *Vallota* is by no means fastidious; loam or peat will suit it, a mixture of the two probably best fulfilling its requirements. A porous compost is however indispensable, as the roots, being thick and fleshy, cannot well exist in health in a soil of a close nature.

Propagation is so easy that no difficulty need be experienced in working up a stock. The bulblets which form around the old bulb need only to be taken off and inserted in some free sandy soil. This, indeed, is the best time to commence the formation of a specimen, as, if a dozen little bulbs are dibbled into a 4-in. pot, and are shifted on as they fill the pot with roots, never attempting to part or disturb the bulbs in any way, they will be found to make rapid progress, and a large plant will be formed in less time than would be the case if each bulb were grown on singly. The *Vallota* is known to be of a hardy nature, and it is probable that it would pass the winter in the open air in many parts of England uninjured. I should much like to know if any of your readers have proved it in this respect. It would undoubtedly grow and flower well in a well-chosen situation, and a little protection to ensure its safety would not be a difficult matter to arrange. Plants that ripen their seed in a low temperature are generally enabled to resist a considerable amount of frost. Now, the *Vallota* will perfect its seed in an average temperature of 45°, descending to freezing point at night. This I have proved, as I sowed by way of experiment the contents of a pod thus ripened, little thinking it would germinate, but, to my great surprise, every seed came up. I consider this circumstance very interesting, and I cannot call to mind any other plant which would ripen its seed in such a low temperature. When the cold weather set in the pods were but half swelled; they grew on during the coldest time, and perfected the seed in February. With the exception of *Cyclamen hederifolium*, I do not know of a parallel case. The seed of this species is formed in September, continues to swell during the winter, but does not ripen until the following summer. J. C. B.

DEEP POTS FOR LILIES.

Not only are deep pots preferable for these, but they are also by far the best for all plants of a moisture-loving character, especially such as send their roots far down into the soil in the way in which most of them do. So convinced am I of the advantage of having moderately deep pots, that I have given up using those made according to the old measure, as although they may be desirable for a few plants, shifting from one to the other is rendered awkward. Besides being better adapted for plant growth deep pots take up less room, which is a great consideration, and more particularly so in nurseries where plants have to be packed and sent out in hampers, in which pots of the deep make travel with much greater safety than those of other descriptions. The great secret in growing plants well is to have a ball of earth that does not dry too rapidly, which in shallow pots

with fair drainage it is almost sure to do during the summer months' seeing that there is a large body of heated air continually acting above and below the pot, and which, in passing through the soil, necessarily robs it of its moisture. In a deep pot where the surface area is less, evaporation is not so rapid, and consequently the plant growing therein is more favourably circumstanced, owing to its being kept in a more uniform condition as regards moisture. There is no doubt that it is beneficial for the ball to become a little dry occasionally, as that tends to keep the soil sweet and healthy, but sudden alternations are to be avoided, as they soon tell unfavourably on the health of the plant. No plants perhaps show the desirability of using deep pots more unmistakably than Strawberries, which are not half the trouble as regards watering when in deep pots that they are when grown in shallow ones, and besides saving labour in this way, the yield of fruit is greatly in their favour, a result brought about through the roots being always in a moist medium. This enables the flowers to set and the fruit to swell more regularly than is possible when the balls get dry, for if once checked in their onward course, the cuticles of the young fruit become contracted, and if this takes place, they never afterwards make satisfactory progress. As the time for layering Strawberries is now at hand, I would recommend that a trial be made of deep pots, as a commencement, feeling sure as I do that any one who may use them will have reason to be satisfied with the produce of the plants which may be grown in them. S. D.

ACHIMENES AND THEIR CULTURE.

WHEN looking through a small garden a few days since I was much struck with the healthy appearance and vigorous growth of some pots and pans of *Achimenes* coming on for exhibition. The *Achimenes* are excellent exhibition plants, and at some of the provincial shows held during the months of July and August they are invariably present in very fine form. Some of the earliest to be met with are at the exhibition of the Tunbridge Wells Horticultural Society, which is held on the first Friday in July, and they are always large specimens grown in pots or pans and laden with fine flowers. The *Achimenes* is such a useful and valuable decorative plant that it should form a part of the collection of plants in every place having a stove, and consequently a moist bottom heat at command. A good plan to start it into growth is as follows: Ordinary seed pans may be filled to within 1 in. of the brim with a light, fine soil, made up of two parts leaf-mould, one part loam and one part sand. The bulbs of the *Achimenes* can be placed on this soil about 1 in. apart and covered with $\frac{1}{2}$ in. of soil; then a gentle watering may be given and the pans placed in bottom heat, where they will soon begin to grow. When these have put forth shoots 1 in. or so in length, they should be potted off into 3-in. pots, placing six of the plants round the edge of the pot, using the same soil as before recommended, watering them by means of a gentle sprinkle with tepid water, returning them to the warm pit or frame, but plunging the pots in the fermenting material, as bottom heat is indispensable at this stage. In about two weeks the pots will be filled with roots and another shift will be indispensable. The pots require to be well drained, the size used depending on the dimensions of the plants; but a slight shift will suffice, so that the roots may find their way to the sides of the pots as soon as possible. In about a month it will be necessary to give the final shift, and this should be a pretty large one, still using the soil above recommended. The plants will now require to be plentifully supplied with water, watering in the evenings, as it is said that if water touches the leaves and the sun strikes them when moist they will become scorched and lose much of their beauty. Great care is necessary in giving air to the plants, and on no account should air be given both at the top and bottom of the pit at the same time, as the plants are somewhat impatient of cold draughts playing on them. When they begin to flower it will be necessary to shade them in sunny weather lest the flowers be injured by the action of the sun. When the plants are in full bloom and can be employed for decorative purposes, they should have a position in a stove or somewhat close house, and only when the weather is very warm and genial should they find a place in the greenhouse.

After the plants have gone out of bloom they should be allowed to die off gradually, and should be placed on one side for the winter where they are out of the way of harm from frost and not in danger of decaying from dry-rot. A first batch should be started into growth early in February, and others should be grown on afterwards to supply a succession of flowering plants.

The following will be found a good and useful selection of varieties: *Ambrose Verschaffelt*, *Aurora*, *Baumanni hirsuta*, *carminata splendens*, *Eclipse*, *Edouard Boissier*, *Harry Williams*, *longiflora major*, *Mauve Perfection*, *Meteor*, *Parsonsi*, *purpurea*, *Rollisoni*, *rosea magnifica*, *Stella*, *Unique*, and *Williamsi*. R. D.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Disocactus biformis.—This somewhat singular and rare plant at first sight might be mistaken for an Epiphyllum, but it differs from that genus in being less dense, and in having the flowers, which are rose-coloured, more regularly distributed, and not always on the apex of the stem. It flourishes under the same treatment as that usually given to Epiphyllums, and, being a native of Honduras,



Disocactus biformis

it wants a considerable amount of heat. It does best as a basket plant. Many little varieties of this kind are lost through not being grown in a way which suits them best.—J. CROUCHER.

Azalea indica Empress of India.—This fine variety is of Belgian origin, and was raised by M. Van der Cruyssen, and exhibited by him at the Ghent Show in 1878, under the provisional name of Héros de Flandre. It has since then passed into the hands of M. Auguste Van Geert, of Ghent, by whom it is now being distributed under the name here adopted. The Empress of India will take rank amongst the finest of recent acquisitions. Its compact-growing habit and dark green foliage are all that can be desired, while its blossoms are remarkable not only for their size and substance, but also for their symmetry. They measure 4 in. in diameter, are perfect in form, the outer segments of the corolla well expanded, even at the edge, and fully displaying the tuft of numerous smaller petaloid segments which fill up the centre. The colour is a pleasing tint of rosy-salmon, feathering out towards the well-defined but narrow white band which borders each lobe, the upper segment being, in addition, blotched with a dense mass of deep crimson dots. The central petaloid segments are of the same rosy colour, and similarly bordered with white. We understand that this variety is, like most of its race, a free-blooming kind and of vigorous constitution, so that it may be looked upon as a valuable addition to the many fine Belgian varieties which have been recently introduced, and which have proved so important and valuable as decorative and exhibition plants.—*Florist.*

Hanging Baskets in Conservatories.—When well filled these form acquisitions in conservatories and plant houses, besides being available for indoor decoration. They should, however, bear some proportion as regards size to the spaces which they are to occupy, as small baskets suitable for drawing-room windows or plant houses would be quite out of character in lofty entrance halls, and still more so in spacious conservatories. Although as a rule baskets are filled with a mixed arrangement of flowering and trailing fine-foliaged plants—which is, perhaps, the best in a general way—yet where means are at hand for keeping up a successional display, very striking effects may be obtained by having only one kind of plant in each basket, filling them in pairs consisting of single varieties, as, for instance, at this season, Achimenes, Tropæolums, Ivy-leaved and zonal Pelargoniums, and Lobelias. For green-foliaged baskets various kinds of Ferns succeed admirably if kept moist and shaded, as does also that most useful of all plants for covering bare surfaces with a living carpet of green, *Lycopodium denticulatum*. But to give a full list of basket plants would make quite a catalogue; suffice it to say that to ensure success a tolerably rich friable compost, and above all copious supplies of tepid water after the plants get well rooted, are required. Stopping, training, and pegging down the main shoots over the base of the basket, also need attention in order to get all parts evenly covered; after that they should be allowed to grow naturally during the season.—JAMES GROOM, *Linton.*

THE FRUIT GARDEN.

LAYERING STRAWBERRIES.

For many years past we have always had a large number of Strawberry runners put into small pots by the end of June, but July will be well advanced before many of them are ready for this operation, as Strawberry runners, like most other things, are some weeks later than usual this season. However, they promise to be good when they are ready, and by a little extra care in layering, and good treatment afterwards, I have no doubt they will make as fine plants by autumn as in former years. Many only layer such Strawberry plants as are wanted for pot culture, but we layer into pots every plant which is required for planting in the open quarters during August and September; and, although it is a little more labour at first than only lifting them from where they have rooted and planting them again, it is a plan which secures much finer plants, which get established early in autumn, withstand the winter well, and produce fruit the following season. On this account I would advise all who purpose making a new plantation of Strawberries later on to take the first opportunity of preparing the plants for it by layering them into pots; 2-in. or 3-in. pots may be used for the purpose. They need not be new pots, but should be clean inside. A piece of charcoal, crock, or something of the kind should be placed at the bottom of each pot, which may then be filled up rather firmly with the soil. The latter should consist of fine loam and leaf-soil, Mushroom manure, or any old manure, in about equal parts.

When the runners have not rooted much the whole of the pots may be filled in the shed before taking them out to the plants, and each plant must be lifted and placed with its roots resting in the centre of the pot. A small wooden forked peg should then be taken and pressed into the soil, so as to catch the tendril which connects the young plant with the old one. This holds the young plant firmly on the pot until it has taken a firm hold of the soil. But a different plan from this may be taken when the runners have rooted into the soil around the old plant. Instead of filling the pots at first, leave them empty; take them and the soil to the plants, and as each young plant is lifted by the roots, pot it in the ordinary way into the small pots without breaking its connection with the old plant. In this case pegs are not wanted, as the roots in the soil hold the plant firm enough. In both ways the plants should have a gentle watering through a fine rose as soon as the potting is over. In dry weather, when they cannot be watered as often as is required, it is a good plan to plunge the pots in the soil to the depth of 2 in. or 3 in., as they do not become so quickly dry in this way; and if they do get over dry they do not suffer so much through it. Where they can be frequently watered, however, they need not be plunged, but only placed level on the ground. The time for severance from the parent plant depends a good deal on what quantity of roots the young plants possess when layered. As a rule, all of them are ready at from two to three weeks. If layered now, well-rooted plants might be secured by the first week in August, and after being allowed to stand in the small pots for a few days when taken from the old plants, they may either be planted into the open quarters or potted into larger pots to fruit the following spring under glass. We generally layer many hundreds for both purposes annually with very satisfactory results.

CAMBRIAN.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Large Strawberries.—I have just raised a Strawberry of the new President Lincoln variety which measured $11\frac{1}{2}$ in. in circumference, being, I believe, the largest of which we have any record in this country; has this been equalled in England?—H. HENDRICKS, Kingston, N. Y., U.S.A.

New Apple.—In the fine collection of winter specimens exhibited by Ellwanger & Barry at the recent horticultural meeting at Rochester was the beautiful Aucuba-leaved Reinette. It is medium in size, nearly round, striped and shaded with light red, and has a yellowish-white flesh, fine grained, with a mild, sub-acid, and very good flavour.

A superior Cherry, comparatively little known, called the Elbenter Cherry, is, according to the *Journal of Horticulture*, cultivated on the shores of the Lake of Constance, notably at Lindau, Tettnang, &c. It is distinguished for its firm flesh, large size, and small stone, and is further noted for its superior travelling qualities. Being a late bloomer, a plentiful crop is invariably obtained, and as it ripens after all other table cherries are over, it is esteemed quite an acquisition.

Blighted Keswick Codlin Apples.—We have several trees of this free-bearing early Apple crowded with small dead branches that look as if paralysed or struck by lightning. I have noticed the same occurrence on many previous occasions, and more so in the case of this particular variety of Apple than in that of any other. Can any one explain why this variety should be so much affected? The blight generally shows itself just after the fruit is set; nevertheless, the healthy part of the tree generally grows away freely and perfects a good crop of fruit even in the most adverse seasons when other kinds are scarce.—J. G.

Late Forced Strawberries.—In a season like the present when Strawberries, like all other garden produce, are late in ripening, it requires an extra supply under glass to meet the demand that would in ordinary seasons be met by produce from open-air beds. We have at present (June 20) a fine crop ripe in cold pits on plants that were fruited in pots last year and planted out, as is ordinarily done after the forcing season is over. These may be relit at any time during spring, as the ball consisting of old roots and earth that will adhere to them will ensure their safety at any time. Even if in full bloom and if placed in pits as bedding plants or early Potatoes are cleared out, well watered, and kept close for a few days, they will produce an excellent late crop. They are not perhaps valuable in a commercial point of view, but when fruit for dessert has to be regularly supplied they will be found to be most useful.—J. GROOM.

Selections of Hardy Fruits.—The present season seems likely to again remind us of the necessity of selection as regards open-air fruits; for, while the fruit crop this year is now generally put down as a partial failure, certain sorts are still bearing fair crops. For instance, among Pears we have fine crops on standard trees of Ashdown Park, Lammis, Swan's Egg, and a few other kinds. Amongst Apples, Keswick Codlin, Stones Apple, Graham's Russet, Golden Knob, and King of Pippins are producing good crops; and amongst Plums, the same may be said of The Dolphin, a sort largely grown now for market. This variety seems to have braved the season the best of all. I might multiply instances indefinite, but only give the foregoing in order to induce those who are contemplating planting to select from those sorts that appear able to withstand our very trying seasons and yet produce fruit to repay the cultivator.—J. GROOM, *Linton, near Maudstone.*

Summer Pruning Peach Trees.—This is the best time for the principal pruning of Peach trees on open walls; in fact, if done now with judgment little winter pruning will be necessary beyond taking out any dead or worn-out branches. My own impression is that Peaches and other stone fruits, although impatient of the knife in winter, may be freely cut in with advantage during active growth. For this reason I cut out but little at the winter or spring pruning, either under glass or on open walls; but, taking the trees in rotation as their crops get to a safe stage for final thinning, I cut out all useless or barren wood and only retain that on which there is fruit, or such as is needed for producing bearing wood for another year. Peaches and Nectarines when in good health require to be disbudded, and thinned with a rather severe hand, as under favourable circumstances they make a surprising amount of growth in one season. Under glass there is not much fear about getting the wood well ripened, but on open walls undue luxuriance must be repressed. Gross, watery shoots should be cut out and those of medium strength laid in, far enough apart for all the foliage to get free exposure to light and air, as on its perfect maturation and strength of flower-buds depends next year's crop. A good heavy crop is the best and most natural way of diminishing superabundant vigour, and the most likely way of attaining that is to thin out the young wood well at

this season, so that what is retained may have the full benefit of what sunshine we may get to ripen it in good time.—JAMES GROOM, *Linton.*

NOTES OF THE WEEK.

The Curatorship at Kew.—We hear rumours as to changes in the curatorship at Kew. It is said that the situation has been offered to the superintendent of a well-known private garden in Scotland. The man in question is a most able gardener, but we doubt generally the system of appointing a private gardener, no matter how able, to the curatorship of a botanic garden, involving, as it always does, a wholly different set of conditions. Even the smallest botanic garden is so different in its contents from anything in private places that it would be little else than madness to place it in the charge of a person trained in ordinary private gardens. How much more so then must it be to place such a large and varied collection as that at Kew under the general direction of a person not having a life-training such as the curator of a botanic garden should possess. The fact that a man is a good cultivator in a private garden is no proof whatever that he would be so in a botanic garden. The things grown in each are wholly different. Mr. Smith, with his long training at Kew, is, we believe, generally admitted to be a very fitting man in all ways for the position, and therefore we hope the rumours to which allusion is made are without foundation.

New Sarracenia.—An interesting *Sarracenia*, raised in Messrs. Veitch & Son's nursery, was exhibited at South Kensington on Tuesday last, under the name of *S. formosa*. It is the result of a cross between *S. psittacina* and *S. variolaris*, and exhibits in a remarkable way the intermediate character of both parents. It is considerably taller in growth than *S. psittacina*, with its parrot's-head-like pitcher and lid of a pale green tint beautifully reticulated with crimson veins. It is, moreover, robust in habit, and in this respect is similar to *S. variolaris*.

Yellow Lobelia (L. lutea).—We have received from Messrs. J. Laing & Co., of Forest Hill, flowering specimens of this interesting species. It has much the same habit as that of some of the forms of *L. Erinus*; its branches, which are slender and trailing, are but sparsely furnished with leaves, from the axils of which are produced bright golden-yellow blossoms about the size of those of the ordinary bedding Lobelia. It is apparently very free both in growth and flower, and no doubt when it becomes better known and grown under different conditions it will prove very useful for bedding and other decorative purposes, as dwarf-flowering plants of this class are not plentiful. Mr. Cannell, of Swanley, has also submitted to us a bunch of flowers of this Lobelia which fully bear out the preceding remarks, the yellow hue of the blossoms being even brighter than in Messrs. Laing's specimens, and the flowers produced in greater profusion. Mr. Cannell informs us that he has planted it out in order to test its value as a bedding plant.

Perennial Larkspurs.—Perhaps the handsomest batch of flowers we have seen for a long time, either indoors or in the open garden, is one of Delphiniums in Mr. Joseph Stevens's garden at Byfleet. The wonderful beauty of the blues and purples in these flowers is quite beyond the art of the colour-printer. The beauty of Gentians is often talked of, but the fact is these Delphiniums surpass them in depth of colour and wonderful iridescence. If they were difficult to grow we should perhaps hear more about them; but they may be enjoyed by anybody with a bit of ground, and without the aid of any glass whatever. The wet season, instead of harming them in any way, has simply added strength and beauty to the flowering shoots, which it generally does in the case of hardy plants. We hope at another time to give a list of the best kinds in Mr. Stevens's collection.

Hymenocallis macrostephana.—We received this from two sources at the early part of the present year. First from Sir Philip Egerton, who had it from a Continental nursery under the name of *Pancratium fragrans*, and who noticed that it was quite different from the plant properly so called, which is a variety of *Hymenocallis speciosa*; and afterwards from Mr. Woodbridge, gardener to the Duke of Northumberland at Sion House, who has grown it for some time there. We have not been able, so far, to trace out further its history, or to ascertain its native country. Its nearest ally is evidently the Mexican *Choretis glauca* of Herbert, and the two together form a group midway between *Ismene* and the typical species of *Hymenocallis*, such as *speciosa* and *caribaea*, in which the corona is much smaller, and the free portion of the filaments proportionately larger. The flower is pure white and sweet-scented, and it certainly is one of the most valuable of all the *Pancratia* for decorative purposes. It flowers in February and March.—*Botanical Magazine*

A Field of Amaryllis.—Mr. Guiheneuf informs us that in the grounds of M. André Leroy at Angers there are at present two acres of Amaryllis in flower, mostly varieties of *A. vittata*.

Grass Seeds.—The Royal Agricultural Society has awarded Messrs. Carter & Co. a silver medal for the successful manner in which they have practically illustrated their system of laying down lawns and lands to permanent pasture.

Foxgloves.—We have received from Messrs. Caudwell, of Wantage, some beautiful varieties of Foxglove varying from pure white to the deepest purple and prettily spotted inside. They are amongst the finest we have seen.

Burnham Beeches.—These celebrated trees (says the *Court Circular*) are now absolutely secured, the Corporation of London having with great public spirit purchased both the trees and a quantity of the surrounding land for the sum of £12,000.

Cow Parsnips in Euston Square.—These gigantic umbelliferous plants now form a fine feature in this town Square. They are from five to ten feet high, and are bearing huge heads of flowers rising from tufts of very large leaves. Such plants are well suited for quiet nooks in town gardens, as they take care of themselves and spring up annually in abundance from self-sown seeds.

Prize for Seedling Roses.—We are requested to state that the prize offered at the National Rose Society's Show at the Crystal Palace by Mr. G. P. Hawtreys for three trusses of any new seedling Rose not in commerce, and for which there were no entries, may be competed for at the Society's provincial show at Manchester, on the 19th inst.

The Crops in Angers.—These are suffering just as much as here both in the garden and farm; so Mr. Guiheneuf, who has just came from Angers, informs us. This is noteworthy in a climate where the Camellia is a common shrub, and where the Magnolia forms an evergreen boulevard. There is very little fruit this year; of Peaches there are none. The Peach in that region is grown against walls, as well as in the form of a standard tree.

The Australian Grass Trees (*Kingia australis*, and *Xanthorrhoea hastilis*) are growing vigorously in one of the greenhouses in the College garden, Dublin. The latter has recently flowered. They are as yet low-stemmed, but being now established are sure to do well. Their habit is unique—a graceful drooping head of glaucous Sedge-like leaves, produced from the apex of a Tree Fern-like stem. The inflorescence of *Xanthorrhoea* is similar to that of a Bullrush in general appearance.

Begonia Reine Blanche.—This is without doubt the purest white-flowered Begonia which we have in cultivation. It is dwarf and compact in habit, and has deep green foliage and erect flower-stems about 1 ft. high, each bearing several blossoms of moderate size and of good form. We saw it in quantity a few days ago in the nursery of Messrs. Laing & Co., by whom it was raised. We also noticed a double white-flowered variety which will be a decided acquisition, as so far as we know no white-flowered double kind has before been raised.

Lilium Kramerii.—One of the finest examples we have yet seen of this charming Lily is in Mr. G. F. Wilson's garden at Weybridge. It is in a pot and is bearing eighteen flowers, sixteen of which are now fully expanded, and three of the stems have three flowers on each. The tallest of the stems measures 4 ft. from the rim of the pot. It is interesting to observe the many shades of colour which the blossoms of this plant assume, some being of a much deeper shade than others.

Pæonies at Tooting.—These gorgeous hardy perennials are now very gay in Messrs. Barr & Suggen's seed grounds at Tooting, and also in those of Mr. Parker. Than these few hardy flowers are more desirable, as the blossoms form large, compact rosettes often over 6 in. across, and have a wide variation of colour from the purest white to the deepest crimson; the delicious perfume emitted by them, too, is another recommendation; in many kinds it resembles that of Tea-scented varieties of Roses. These showy flowering border plants are certainly deserving of more extended culture than they get, especially the newer kinds, amongst which are some possessing great beauty.

Tulipa Schrenkii.—This is a close ally of the old well-known Tulipa Gesneriana of Linnaeus, from which so many of our garden forms have originated. It differs from Gesneriana mainly in the form of the flower, which is more funnel-shaped, with more spreading segments. In colour, like Gesneriana, it goes through a wide range of variation. Our wild specimens, gathered by Schrenk, have flowers of a uniform pale yellow. The plant from which the drawing was made, which was sent to us by Dr. Regel, they were considerably larger and bright crimson with a yellow throat. It flowers with us at the beginning of April. It has been gathered in Turkestan by

Lehmann and others, and in the Soongarian desert by Schrenk. Since the publication of my monograph of the genus in 1874, the Russian explorers, principally Dr. Albert Regel, have found eight new Tulips in Central Asia—Kaufmanniana, Kolpakowskiana, triphylla, tetraphylla, Kesselringi, Korolkowi, Alberti, and turkestanica.—*Botanical Magazine*.

SOCIETIES AND EXHIBITIONS.

ALEXANDRA PALACE ROSE SHOW.

JULY 5.

THE annual display of Roses held here on Saturday last was in every respect superior to that which took place the previous week at the Crystal Palace, and, considering the unfavourable weather which we have experienced during the few intervening days, the change in the blooms was remarkable. The classes were on the whole well filled, and though we learn that many intending exhibitors withdrew, the show was altogether a fairly representative one, both as regards nurserymen and amateurs.

The class for seventy-two distinct varieties from nurserymen was represented by five exhibitors. The best collection came from Messrs. Keynes & Co., Salisbury, and comprised fine blooms of Dupuy Jamain, John Hopper, Senateur Vaisse, Beauty of Waltham, John Stuart Mill, Captain Christy, Mdlle. Eugène Verdier, Dr. Andry, La France, Maurice Bernardin, La Rosière, Cheshunt Hybrid, and others of sterling merit; the other contained several excellent examples of the leading varieties. For forty-eight varieties, three trusses of each, Messrs. Keynes & Co. were again first; the best of these were Etienne Levet, Boule de Neige, Marguerite Brassac, Marie Baumann, Alfred Colomb, Victor Verdier, and Ferdinand de Lesseps. The next in order of merit were Messrs. Paul & Son, Cheshunt, who had excellent blooms of Abel Grand, Prince Camille de Rohan, Dr. Andry, La Rosière, Henry Ledechaux, and others, including their new Hybrid Perpetual Duke of Teck. There were four other competitors in this class. Mr. B. Cant, Colchester, showed the best collection in the class for twenty-four Hybrid Perpetuals only; these were an excellent lot, and amongst the most conspicuous were Duke of Edinburgh, Madame Lacharme, Hippolyte Jamain, Exposition de Brie, Prince Camille de Rohan, John Hopper, Mdlle. Thérèse Levet, and the old Général Jacqueminot. There were seven other collections shown in this class. The class for twenty-four single blooms was numerously represented, there being ten exhibitors, and the highest award was also gained by Mr. B. Cant, who showed a meritorious collection, the next best stand was shown by Mr. Corp, Oxford. Mr. G. Prince, Oxford, sent the finest dozen of Noisette and Tea Roses, amongst which the best blooms were Marie Van Houtte, Albaresea, Madame Kuster, Souvenir d'un Ami, Rubens, Comtesse de Nadaillac, and Catherine Mermet. The amateurs' classes were on the whole decidedly in advance of the nurserymen's, especially the admirable forty-eight blooms shown by Mr. R. N. G. Baker, Devon, consisting of splendid examples of Victor Verdier, Etienne Levet, Duke of Connaught, Marie Baumann, Charles Lefebvre, Dr. Andry, Duke of Wellington, La France, Captain Christy, Marquise de Castellane, John Hopper, and others. Mr. T. Jowitt was next in order of merit, and the collection shown by him comprised many fine blooms. For thirty-six single blooms Mr. Baker was also first, and though the flowers were good, they were not equal to those in the preceding class. The same exhibitor also took first honours for twenty-four single blooms, in which class there were four other competitors. The next two classes of twenty-four and twelve blooms respectively, were for exhibitors who had not competed in the previous classes. The best of these came from Mr. W. H. Wakeley, Rainham, Essex, who showed a fairly representative collection in good condition. The Tea-scented and Noisette varieties were shown better by the amateurs than the nurserymen; the first prize was won by Mr. T. Jowitt, who had fine examples of Belle Lyonnaise, Rubens, Madame Bravy, Cheshunt Hybrid, Devoniensis, Homère, Niphotos, Cloth of Gold, Moiret, and Marie Van Houtte. There were eight other competitors in this class.

The open classes were rather scantily represented. The best dozen Roses of 1877, 1878, and 1879 were shown by Messrs. Curtis, Sandford, & Co., who had Egeria, Madame Albani, Mons. G. Fournier, Princesse Charlotte de Tremouille, Madame Louis Pernet, Penelope Mayo, Catherine Bell, Madame Gabriel Luizet, Madame Sophie Fripot, Marquise Adèle de Murinais, Souvenir d'Auguste Rivière, and Madame Marie Verdier. Messrs. Keynes & Co. were the other exhibitors; they sent Mdlle. Marie Castel, Souvenir de Louis Van Houtte, John Fraser, Souvenir d'Auguste Rivière, Innocent Pirola, François Joseph Pfister, Princesse Charlotte de Tremouille, Dr. Kreel, La Saumonée, Ingénieur Modèle, Parthélemy Joubert. For

six blooms of any Rose of 1877, 1878, or 1879, Messrs. Paul & Son, Cheshunt, were first with fine flowers of Emily Laxton; Messrs. Curtis, Sandford, & Co., the other exhibitors, showed Mabel Morrison. For eighteen blooms of English-raised Roses in commerce, fine examples of John Hopper, Cheshunt Hybrid, Peach Blossom, Black Prince, Mrs. Baker, Magna Charta, Mrs. Laxton, Duke of Edinburgh, Oxonian, Annie Laxton, Princess Beatrice, Reynolds Hole, Marchioness of Exeter, Emily Laxton, Miss Hassard, Prince Arthur, Charles Darwin, and the Sultan of Zanzibar were shown from the Cheshunt Nurseries. Messrs. Curtis, Sandford, & Co., were the only exhibitors of blooms of Baroness Rothschild, and Mr. J. Davis, of Marchal Niel. The delicate-tinted La France was shown finely by Messrs. Curtis & Co., and also by Messrs. Keynes, and the finest blooms of Marie Baumann were sent by Mr. Curtis, Cambridge.

Miscellaneous Class.—The exhibits in this class were by no means numerous, the principal being an interesting collection from Mr. B. S. Williams, Holloway, consisting of Palms, Crotons, Ferns, &c.; also fine plants of Nepenthes, and a group of insectivorous plants attracted considerable attention, as well as the remarkable Caricature Plant (*Graptophyllum Nortoni*), with its prettily variegated leaves and fanciful delineations of faces in profile. Mr. Boller showed his usual collection of Cacti, Agaves, &c., both in large and miniature specimens. From Mr. Ware, Tottenham, came some excellent cut blooms of named varieties of Pyrethrum, of which Mons. Barrall, a deep magenta-coloured kind, was particularly noteworthy. Cut blooms of Pæony were also contributed by the same exhibitor, also a set of Pansies and seedling Picotees and Pinks. Captain Hoiford Thompson, of Exeter, contributed cut blooms of Pansies in numerous and rich variety, which were, with the other additional exhibits, highly commended.

Lists of awards at this and the following shows will be found in our advertising columns.

ROYAL HORTICULTURAL SOCIETY'S ROSE SHOW.

JULY 8.

THE amalgamation of the Pelargonium Society's exhibition with this Rose show and the ordinary fortnightly meeting, together with the exhibits for special prizes, made altogether an extensive and attractive exhibition. The spacious tent, and the narrow one too, were called into requisition, though so much room was scarcely needed, and the large amount of unoccupied space had to be filled with plants from Chiswick. The special display of cut Roses from the Waltham Cross Nurseries, though good, showed unmistakably the effects of the unfavourable weather which we have lately experienced.

First-class Certificates were awarded to the following:—

Begonia Constance Veitch (Veitch).—A fine hybrid of compact habit, bearing a profusion of large deep crimson blossoms, about 9 in. high.

Rhododendron Duchess of Teck (Veitch).—A beautiful greenhouse variety belonging to the Javanese group, with compact trusses of sulphur-yellow blossoms, suffused with a bluish tint.

Begonia Reine Blanche (Laing).—This is without doubt the finest white-flowered variety yet exhibited, and one which well deserves the distinction accorded to it. It is dwarf in habit, has good foliage, and its free-flowering blossoms are of the purest white.

Begonia Edward Morren (Cannell).—One of the finest of the double-flowered kinds, with large rosette-like flowers of good form and of a pleasing deep cerise tint.

Coleus Maude (King).—A variety with elegantly mottled foliage and apparently a free grower.

Pelargonium Mrs. Henry Cox (Hayes).

Pelargonium Volonte National (Perkins).—A useful free-flowering variety, the flowers of which have crisped margins.

Roses.—The Roses shown in the competitive classes were somewhat numerous and better in quality than we anticipated, though not so fine as they would have been had the weather been more favourable. In the nurserymen's classes the blooms from Messrs. Curtis, Sandford, & Co., Torquay, ranked highest in the majority of cases. In their stand of forty-eight varieties, the most noticeable were La France, Xavier Olibo, Madame C. Wood, Abel Carrière, Baroness Rothschild, Magna Charta, Marquise de Castellane, Lelia, Duke of Edinburgh, and François Michelin. Messrs. Paul & Sons, Cheshunt, showed a fine collection for the second prize, the best of which were Glory of Cheshunt, Duke of Teck, Elie Morel, Victor Verdier, Duc de Rohan, Maurice Bernardin, and John Hopper. The best twenty-four varieties, three trusses of each, came also

from Messrs. Curtis, Sandford, & Co., and contained fine blooms of François Michelin, Exposition de Brie, Madame Victor Verdier, General Jacqueminot, and Xavier Olibo. The next best group came from the Cheshunt Nurseries, amongst which the beautiful Duke of Teck, Etienne Levet, Dupuy Jamain, Marie Baumann, and Sultan of Zanzibar were most conspicuous. The best twenty-four single blooms were furnished by Messrs. Laing & Co., Forest Hill, who had Countess of Oxford, Princess Beatrice, Etienne Levet, and François Michelin amongst others in fine condition. In the class for twelve Messrs. Curtis & Co. were again first, thus showing plainly what an advantage the growers in the sunny south have over their more northern friends; and this was further exemplified by the excellent exhibits of the well-known Rosarian, Mr. R. J. Baker, Exeter, who maintained a prominent position in the amateurs' classes. The twenty-four single blooms shown by this exhibitor were superb and very evenly matched. They comprised Marie Baumann, Marquise de Castellane, Marguerite de St. Amand, Sultan of Zanzibar, Ferdinand de Lesseps, Baroness Rothschild, La France, Marguerite Bras-sac, Dr. Andry, Mrs. Baker, Beauty of Waltham, and Prince Camille de Rohan. The finest dozen varieties of three blooms each were also shown by this exhibitor, and were all in excellent condition. Mr. G. Hawtreay showed the best dozen single blooms, and had fine flowers of Duke of Edinburgh, Niphetos, Exposition de Brie, Catherine Mermet, Duc de Chartres, Marquise de Mortemart, Mons. E. Y. Teas, Marquise de Castellane, and Marguerite de St. Amand. The same exhibitor showed the best dozen of Tea and Noisette varieties, amongst which Niphetos, Catherine Mermet, Marie Ducher, Madame Willermoz, Marie Van Houtte, Rubens, Souvenir d'Elise were particularly fine. The next best dozen contained good blooms of Madame Caroline Kuster, Cheshunt Hybrid, Rubens, and Madame Bravy. There were twelve stands shown in the class for six blooms of any Hybrid Perpetual. The highest award was taken by Mr. Baker with admirable examples of Marie Baumann. Mr. B. Cant was next with Duke of Edinburgh. Sultan of Zanzibar and La France were also shown in this class. The corresponding class for Tea or Noisette varieties was represented by six entries; the best came from Mr. Hawtreay, who had excellent blooms of Niphetos. The six best new Roses of 1877 and 1878 came from Messrs. Curtis, Sandford, & Co., who had Egeria, Barthelemy Joubert, Penelope Mayo, Princess Charlotte de Tremouille, Madame Gabriel Luizet. Messrs. Paul & Sons, Cheshunt, showed Robert Marnock, Princess Charlotte de Tremouille, Souvenir d'Adolphe Thiers, Mrs. Laxton, Souvenir d'Auguste Rivière. Messrs. Keynes & Co., who were third, had John Fraser, Oxonian, Madame Gabriel Luizet, Souvenir d'Auguste Rivière, and Boieldieu. For the prizes offered by Messrs. John Laing & Co. for tuberosity-rooted Begonias, there were but two competitors, and neither collection contained plants of remarkable merit. The best plants in the first prize group were Acme and Professor Burvenich, two free-flowering varieties of fine drooping habit.

Miscellaneous Plants.—The principal group under this head came from Mr. B. S. Williams, who had an interesting collection of fine-foliaged plants and flowering plants of Orchids, amongst which were Vanda Batemanni, Cattleya Loddigesi, and Dendrobium superbiens. It also contained an excellent group of the so-called insectivorous plants in fine condition. Mr. Wills arranged a collection opposite the preceding, consisting of the fine hybrid *Dracaena* for which his nursery is so famous, intermingled with Palms, Crotons, Ferns, &c., and Gloxinias, amongst which one called Mrs. Causton was particularly noticeable, as the flowers were unusually large and of fine form and colour. Well-grown specimens of the curious and rare *Darlingtonia californica* also formed an important feature in this group. Messrs. John Laing & Co. sent an excellent group, in which some fine examples of Begonias were much admired, as they show to such advantage when arranged with Palms, Ferns, and other fine-foliaged plants. A collection for the most part consisting of New Holland plants was shown by Messrs. Cutbush & Sons, and a corresponding group by Messrs. Osborn & Sons, Fulham. From Messrs. Hooper & Co. came an interesting group of succulent plants intermixed with fine-foliaged plants, and a similar collection was shown by Mr. H. Boller. In addition to the plants certificated as meritorious above, Messrs. Veitch & Sons sent a new *Cattleya* under the name of *Philbrickiana*, which is a hybrid between *C. aclandiae* and *C. elegans*, and is quite intermediate in character and superior to either of the parents; *Lilium Anglesi*, a cross between *L. croceum* and *L. tigrinum*; *Begonia rosea* *aperba*, *Admiration*, and *International*. *Sarracenia formosa*, to which we allude elsewhere, was also shown; also two fine varieties of *Gloxinia* named *Jeanne Mermet* and *Sylphe*.

Messrs. F. & A. Smith, Dulwich, set a showy group in which Pelargoniums were the main feature, some of which were particularly fine. The beautiful feathery *Asplenium* (*A. plumosus*) was also shown in fine condition, and well exemplified its adaptability as a decorative plant. Hardy flowers were shown better than they have

hitherto been this year. These came from Mr. Parker, Tooting, and Messrs. Barr & Sugden. The former exhibitor had a fine collection of cut blooms of *Pæonies*, *Delphiniums*, *Pyrethrums*, double-flowering *Potentillas*, good examples of *Hydrangea* Thomas Hogg, *Cypripedium spectabile*, *Spiræas*, and cut flowers of *Erigeron macranthum* and the pretty *Coronilla iberica*. Messrs. Barr & Sugden's collection was extensive, and consisted of cut blooms of English and Spanish *Irises*; of the former a pure white form was particularly noteworthy, also a rich deep purple one named *Plutargus*, both amongst the finest we have yet seen. The pretty *I. lusitanica* and its variety *sordida* were also shown. A numerous collection of *Sedums* and *Sempervivums* were also a prominent feature, and amongst the latter the handsome *S. Regine Amalie* was very attractive by its neat and compact appearance. Cut blooms of *Lilies* were also shown in this collection, and also by Mr. McIntosh, Duneevan, Weybridge, which comprised *L. Humboldti*, *Robinsoni*, *testaceum*, *Martagon* with its varieties *album* and *dalmaticum*, *longiflorum*, *philadelphicum*, *pardalinum*, and several forms of *elegans*. Mr. H. Hooper, Bath, exhibited a fine collection of cut blooms of *Pansy*, *Ranunculus*, *Pyrethrum*, *Pink*, and *Pæony*, which were highly attractive. Bouquets and furnished vases were shown by Messrs. Smith & Larke, Kensington, and a rustic aquarium and hanging baskets by Mr. J. Langbein, Wandsworth Road. A small group of wax flowers was contributed by Miss Mary Bishop which were faithful imitations of the objects they were intended to represent.

EVENING FÊTE.

JULY 9.

THIS was a brilliant entertainment, owing to the electric lighting, which was most satisfactory, especially that in the conservatory and upper part of the garden. A collection of scientific instruments and other objects of interest was exhibited by Messrs. Veitch & Sons, in the upper arcades, where there was also a collection of Cones from California and other vegetable products, &c., from various countries. The greater portion of the exhibits shown on the previous day were in the great tent, and were supplemented by several bouquets and other floral devices from Mr. J. Bromwich, Buckingham Palace Road. The brightness of the electric light had a beautiful effect on the varied hues of the plants and flowers, and it was interesting to observe how some of the colours showed themselves better than others under the artificial light. Many officinal and medicinal plants were shown on this occasion by Mr. Bull, Chelsea, who also had a collection of the so-called carnivorous plants (including several new kinds), *Nepenthes*, *Sundews*, *Venus' Fly-traps*, &c. Mr. Bull likewise exhibited a collection of plants with handsomely-marked leaves, such as *Anætochili*, *Microstylis*, *Sonerilas*, *Goodyeras*, *Bertolonias* of various kinds, including *B. superbissima*, popularly known as the Jewel Plant.

PELARGONIUM SOCIETY.

JULY 8.

THE exhibition in connection with this Society was an extensive one, and occupied the greater part of a long tent. The exhibits on the whole were excellent, though some of the classes were but scantily represented.

First-class certificates were awarded to: Mr. Foster, Clewer Manor, Windsor, for show *Pelargoniums* *Alice*, *Invincible*, *Fug* Captain, *The Baron*, and *Sensation*; Mr. Chas. Turner, Slough for *Fireball*, *Sarah Bernhardt*, and *Electric Light*; Rev. A. Matthews, for *Joe*; Messrs. F. & A. Smith, Dulwich, for *Arab*; Mr. H. Little, for *Miss André* (Jackson) and *Rosy Little*; Mr. Hayes, Edmonton, for *Princess of Wales* (Bull) and *Lady Isabel*, both of the decorative class. Dr. Denny was awarded a certificate for *Black Pounce*, a good show variety; *Dauntless* and *Pioneer*, fine double-flowered kinds; *Commander-in-Chief*, *Horatius*, *Dudu*, *Allegro*, *Romeo*, and *Leander*, single-flowered kinds of the zonal type. A certificate was also awarded to Mr. Catlin for *Fanny Thorpe*, *Lizie Smith*, and *Edgar Catlin*, also single-flowered varieties.

In the competitive classes Mr. James, Isleworth, showed the best half-dozen show kinds, consisting of hug plants of *Snowflake*, *Archduchess*, *Mary Hoyle*, *Princess of Denmark*, *Pompey*, and *Prince Leopold*—all superbly flowered. For six show varieties not in commerce, Mr. Charles Turner showed *Nero*, *Osman Pacha*, *Joe*, *Bertha*, *Constance*, and *Amethyst*. Mr. E. B. Foster was next in order of merit with smaller plants of *Renown*, *Fireball*, *Prince Imperial*, *Mountain of Light*, *Hector*, and *Valiant*. Mr. James also was first in the class for six of the fancy type, and was far in advance of the other groups shown; the varieties were *Morello*, *Princess*

Teck, the *Shah*, *Ellen Beck*, *Mrs. Alfred Wigan*, and *East Lynn*. For six varieties not in commerce of the fancy class, Mr. Turner showed *Polar Star*, *Loadstone*, *Thurio*, *Jeanette*, *Mrs. Milne Home*, and *Sarah Bernhardt*. In the class for eighteen of the decorative type, Messrs. J. & J. Hayes, Edmonton, showed a well grown group of leading varieties. The same exhibitors were first in the next class for six plants of the same type not in commerce; they consisted of *Black Prince*, *Princess of Wales*, *Madame Favart*, *Lady Isabel*, *Harlequin*, and *Maid of Kent*—all excellent examples of good culture. Mr. J. Catlin, Finchley, exhibited the premier group of single-flowering zonal kinds, comprising fine plants of *Lizzie Brooks*, *Titania*, *Lucy Bosworth*, *Rev. A. Atkinson*, *Ellen Pearson*, *Mrs. Leavers*, *Remus*, and *Mr. Catlin*. The same exhibitor also showed the best group of eighteen varieties of the same type. Dr. Denny, who was the only exhibitor for six plants of this class not in commerce, exhibited *Lahoni*, *Lavender*, *Allegro*, *Romeo*, *Dorothea*, and *Ivanhoe*. The same exhibitor also showed the only six of the double-flowered kinds not in commerce; these comprised *Pioneer*, *Gorgeous*, *Stability*, and *Refinement*. Mr. Cannell, Swanley, showed cut blooms of zonal *Pelargoniums*, both single and double flowering kinds, and took the first prizes in each class. Similar collections were shown also by Messrs. Turner, James, and Taylor.

Special Prizes.—Several excellent collections competed for the prizes offered by Messrs. Carter & Co. for twelve varieties of vegetables. The best came from Mr. Miles, gardener to Lord Carington, Wycombe Abbey, who had excellent dishes of *Stamfordian Tomato*, *Tender* and *True* and *Telegraph Cucumbers*, *Sutton's Early Snowball Turnip*, *William I.* and *Laxton's Unique Peas*, *Canadian Wonder Beans*, *Nantes Early Horn Carrots*, *Seville Long Pod Beans*, and *Early London Broccoli*. The next best collection contained some admirable examples of good culture, amongst which the most noticeable were *Carter's White Advancer Bean*, *William I.* and *Harbinger Peas*, and *Carter's Giant Cos Lettuce*. In the class for four dishes of *Peas*, to include *Carter's Telephone*, *Little Wonder*, *Challenger*, and *Culverwell's Telegraph*, Mr. Richardson, Boston, was the only exhibitor.

The only collection exhibited for Messrs. Hooper & Co.'s prizes for twelve kinds of vegetables came from Mr. Iggulden, Romford, and contained fine examples of *Paragon Cucumber*, *Hooper's Favourite Onion*, *Nonsuch Turnips*, *Round White Potato*, *Incomparable Market Pea*, *Covent Garden Perfection Potato*, and *Acme Tomato*.

The same exhibitor also showed excellent dishes of *Peas* in competition for Messrs. Sutton & Sons' prizes, and was awarded the first prize.

Fruit.—Though no prizes were offered on this occasion for fruit large quantities of it were exhibited, especially in the way of *Melons*, consisting chiefly of seedling varieties, but none were of sufficient merit to obtain certificates. Mr. Perkins, Stanmore, showed a fruit of a *Providence Pine apple* which weighed 10 lb. *Peaches* and *Nectarines* were exhibited by Mr. Goodacre, Elvaston Castle, and Mr. J. Sparer, Uxbridge. A numerous collection of fruit trees in pots, consisting of *Peach*, *Nectarine*, and *Cherry*, were shown by Mr. Rivers, Sawbridgeworth, and a similar group also came from the Society's garden at Chiswick.

REMINISCENCES OF THE ROYAL HORTICULTURAL SOCIETY'S FOUR DAYS' SHOW.

THE bank of hybrid *Clematises* shown on this occasion illustrated in a remarkable manner the value of persistent effort, and the benefits conferred upon the community at large by the specialist. By the use of these *Clematises* striking effects may be produced in various ways. They make grand pot or box plants for the interior or exterior adornment of the dwelling house, and there is no reason why, when they become better known, they should not mingle their large, gorgeous, salver-shaped flowers with the *Rose*, *Honeysuckle*, and *Jessamine* on every cottage porch where flowers are cared for. I have selected the following dozen from the collection exhibited, viz., *Mrs. G. Jackman*, *Edith Jackman*, *Robert Hanbury*, *Fair Rosamond*, *Sir Garnet Wolseley*, *Stella*, *Countess of Lovelace*, *The Queen*, *Lord Derby*, *Precision*, *Lady Egmont*, and *Lord Lonsborough*. The work that the Messrs. Jackman have done for the *Clematis*, Messrs. Laing are doing for tuberous-rooted *Begonias*, as the grand collection that firm exhibited fully testified. Both in the parterre and the greenhouse these kinds of plants have a brilliant future before them, and they are so easily raised from seeds that no one who has the command of a frame and a gentle hotbed in spring need be without them, as good-sized blooming plants may be obtained for months.

The Japanese Maples in Messrs. Veitch's collection deservedly attracted a good deal of attention. Such dainty little trees with elegant feathery growth are sure to be sought after for the greenhouse and conservatory, even if they do not prove quite hardy in all parts

of the country, especially as they are offered at a very cheap rate. The most useful varieties are *Acer polymorphum palmatifidum* (green leaved) and *A. p. p. dissectum* (a purple-leaved kind). The Roses in pots were a magnificent show of themselves; but some of the monster Azaleas were disappointing from their rigid outline, for they told of skill and time worse than wasted. I hoped to have seen the classes for hardy plants and cut flowers better filled, but even as it was they elicited a good deal of admiration—"Oh! those dear old English flowers" was uttered more than once in my hearing during the few minutes I stood near them.

The collection of Alpines sent up (not for competition) by Messrs. Osborn was a most interesting one, and contained a goodly number of Saxifrages, including that interesting little species *S. muscoides atro-purpurea*. There were also the showy *Cypripedium Calceolus*, *Phloxes*, *Gentians*, *Geums*, *Geraniums*, &c. The small plants of Ferns that were mixed with the Alpines took off the stiffness of this interesting collection and added to the effect. As regards the groups arranged for effect, in the best efforts relieving or toning-down tints of green had been largely employed. This was specially the case with the first prize collection; indeed, Mr. Wills has revolutionised and reformed the system of floral decoration by his lavish and tasteful use of green, and the large variety of surface which his groups afford; but this did not prevent his giving prominence to specially attractive features, such as, for instance, the grand Pitcher Plant, that formed the centre of the group. In direct contrast, at the other end of the large tent, was the green and white group of Mr. Aldous, which was wonderfully chaste and quiet. It was, perhaps, just a little too crowded, and the background of Palms was, I think, too sharply defined, as a little scattering of the front rank of the background would have taken off the flatness of the group. Most of the materials employed were of a common character, and within the means of most people who have glasshouses, and the arrangement, I know, was favourably noticed by many ladies. White flowers are always effective, when associated with young fresh green foliage. How striking at this season are the white Lilacs, rising in dense, cone-shaped masses amidst the bright green of Box and Laurel in the shrubbery. So also are the common Horse Chestnuts against a background of Limes and Elms in the park. How effective, too, are the round clumps of the Bird Cherry in the woods in association with the varying tints of the expanding foliage of the Oak. But no one who has had much to do with the arrangement of plants requires to be told how effective green and white may become in tasteful hands; and the purer the white and the brighter and fresher the green, the better the effect will be. Hence white and green arrangements are never so charming as in early spring, when all Nature is so fresh and beautiful.

E. HOBDAY.

Utility of Woodlands for Shelter.—Riding over different parts of our country lately, I noticed how badly the grain has been winter-killed. Nearly all the fields exposed to the north-west winds, on the crest of the hills and in the low valleys running north and south, are very thin and patchy. On the contrary, the fields sheltered from the cold north and west winds are in fair condition, and especially so are such fields as are protected by woods. This is a proof of the great mistake which cultivators commit in clearing large extents and cutting away the woods without first studying the topography of their land, and the consequences of promiscuous slashing down of timber. Judicious action in this respect would have added great value to many of our farms which are now totally denuded, and thus so exposed to the cold winter winds that the crops are greatly diminished, and the income to be derived from them seriously curtailed. A narrow strip of woods left on the crest of the hills, and on the north and west lines of many farms, would pay a large interest, by the increase of the crops which would result from such shelter. Quick growing species in this case should be selected. Chestnuts, Locusts (*Robinia Pseud-acacia*), Birch, Maple, Whitewood, and Poplar, are good kinds for this purpose. I have for several years allowed all the young trees along the fences to grow. I have trimmed them, and quite a number have grown so rapidly that I have trees which will soon be ready to cut for rails, posts, or wood. They take no room, shelter the field, and give some shade for cattle. A friend of mine has a very picturesque way of planting woods. He plants his trees in the shape of a fan. Suppose a square or oblong piece to be planted; he selects the corner best situated for a full view of the piece of land. From this corner-point he traces a quarter-circle, and starts rows from this circle to the outer lines of the field. Of course these rows spread the farther they go from the starting point; and to fill between them new rows are commenced as soon as the distances between the main rows are wide enough. By planting close he obtains, after three or four years, good hop poles. Cutting these so that a judicious thinning only is practised, he gets an early revenue, which thereafter can be followed by subsequent cuttings

first of fence posts, then of railroad ties, then of split timber, and lastly of good saleable timber and logs. This plan, which entails some expense at first, is, however, a very profitable one, and at the same time a very picturesque one. This latter point is of more importance than most people are ready to grant for it.—*Country Gentleman*.

ANSWERS TO CORRESPONDENTS.

Fungi in Flower Beds.—I have lately laid out a small garden, and obtained some earth for it from a heap dug out to make room for the foundations of a house. Latterly the beds are covered with fungi, of which the enclosed is a sample. Can you furnish me with the name, and the best way of getting rid of the nuisance?—*FUSILE*. [The name of your fungus is *Peziza vesiculata*. It is very common in gardens and waste places, and on rotten straw, manure, and rubbish everywhere. It never grows in dry or sweet places, and this may afford a hint as to its extirpation.—S.]

Cucumber Root Insects. I send you some roots of Cucumber plants; you will perceive that they are destroyed by some insect. I am a large grower under glass for the market. Can you tell me what the insect is, and how I can destroy it? The matter is most serious to me.—*G. S. D.* [On carefully examining the roots of the Cucumber sent, which were much decayed, I found two species of mites, one translucent mite yellowish brown, with long legs, very active, and trying to hide away when disturbed; the other chestnut brown, very shining and sluggish in its movements. Also a small member of the large family of beetles known as *Brachyclytræ* or *Staphylinidæ*, and a colony of very minute thread-like white worms. All these I think were attracted to the decaying roots, and not the cause of the decay, which I should suppose arose from some defect in the cultivation. We should clear out the plants, renew the soil, and plant afresh.—*W. H. S.*]

Planting Orchards.—I intend planting an orchard of two acres of heavy land, also two of gravel or mixed soil, with apple and pear trees, and shall feel obliged if you will kindly let me know the kind of trees to plant on the different soils; also those that are likely to prove the most lucrative. I shall further be glad if you will mention which kind of soil suits cherries; also the kind of cherry that sells best in the London market.—*G. G.* [If your heavy land is well drained (and it is useless to plant fruit trees of any kind if it is not) you will get the finest fruit and the trees will last longest on the heavy soil. If the light soil be deeply tilled, it will be equally productive for a time, but will require to be manured freely to keep up its fertility. Cherries of all kinds do best in moderately rich, sandy, and calcareous soil; the best market cherries are the Morello, Kentish, May Duke, Black Heart, and Bigarreau. The following varieties of Apples and Pears are hardy, prolific, and certain bearers, and in every way adapted to orchard culture, and will do well on either portion of your land: Apples—Blenheim Pippin, Cox's Pomona, Cellini, Kentish Fill-basket, Devonshire Quarrendon, Golden Noble, Winter Colman, Yorkshire Greening, Gloria Mundi, Norfolk Bearer, Keswick Codling, Golden Winter Pearmain, Northern Greening, and Reinette de Canada. Pears—Hesle, Jersey Gratioli, Swan's Egg, Eyewood, Autumn Bergamot, Jargonelle, Winter Nelis, Marie Louise, Thompson's, Beurré Rance, Comte de Lamy, Louise Bonne of Jersey, Beurré de Capiaumont, and Williams' Bon Chretien.—*W.*]

Erigeron uniflorus and Potentilla Clusiana.—During a tour in Tyrol from which I have just returned, I sent home by post various plants which I was anxious to grow, if possible, in my rock garden. Two of these, which were new to me, I make out to be *Erigeron uniflorus* and *Potentilla Clusiana*, and the plants sent by me are now doing well in a box of peat and sand on a shelf in the Peach house, where there is ample ventilation, and they are protected from the storms and wind which are so trying at this time to delicate plants. The *Erigeron* grew in large tufts on the porphyry cliffs near Botzen, say from six inches to a foot high, and was an extremely handsome showy plant in its native habitat, the individual flowers not unlike *Stenactis speciosa*. The *Potentilla* grew in a rocky mountain pasture, some 2000 ft. above the valley of the Eisack (in which Botzen is situated); in habit and growth it is very like *Alchemilla alpina* were it not for its flowers, which were in loose panicles of the purest white. I should be glad to know if any of your readers have grown these two plants successfully, and if so, whether they require any particular treatment. I am doubting whether to leave them in the box till next spring, or to plant them in peat in a sheltered nook of the rockery, wedging them well in with pieces of broken stone; as I have four or five plants of each, perhaps I might try some in the open air, and give protection to the rest. I found them both in decidedly peaty soil, mixed with rocky grit.—*GEORGE H. CORNEWALL, Moccas Court, Hereford*. [The plants in question are perfectly hardy and succeed well on a thoroughly drained rockery, in a fully exposed position. They thrive and flower in a mixture of loamy soil and grit, but it would be interesting to observe the results when grown in peaty soil as you suggest, as they may grow finer in that than under ordinary treatment.—*W. G.*]

Transplanting and Pruning Hollies.—What is the best time for transplanting Hollies, and also for pruning them?—*L. G. D.* [Hollies, as a rule, may be transplanted and pruned either in spring or early in autumn; but in this sunless wet season we should not hesitate to transplant now, provided the ground was ready and properly prepared for their reception.—*N.*]

Names of Plants.—*H. M. R.*—*Cephalanthera grandiflora*. *E. B.*—*Kalmia latifolia*. *H. E.*—Correct, and as you observe is rare in cultivation. *La Touche*.—*Cochlearia danica*. *H. E. M.*—*Gemista anglica*. *H. E.*—Apparently *Iris Hartwegii*. *H. T. B.*—*Hemerocallis fulva* fl.-pl.

Question.

Diseased Cucumbers. What is the disease that has attacked my Cucumbers? and what can I do to check it? They are in a house, and grew most luxuriantly at first, when all of a sudden they seem to be bitten in places, and from the fruit and stalks a substance of a glutinous character oozes out. We have found on the leaves three of our beautiful small bright green beetles, which are covered with smaller insects. Could these beetles or the insects on them bite the fruit and leaves and poison the plants? Last year we had the same disease in the Cucumber house, and we found three of these beetles. We had the whole house whitewashed, and burnt sulphur in it this year, brought fresh manure and fresh soil from some distance, put in fresh plants, and we were flattering ourselves we had got rid of the evil, when all of a sudden these beetles were found, and the disease immediately re-appeared. I shall feel grateful if any experienced Cucumber grower will tell me what best to do with our plants.—*S. L. V.*

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ORNAMENTAL PLANTING.

THE principal cause of the failure of single trees and of small groups is the neglect of a proper preparation of the soil, as well as of the trees themselves. Generally the plant intended to make an effective single tree, or to figure in a group in park scenery, is brought direct from a much more sheltered situation than the one in which it is planted. Instead of being subjected to such previous treatment as will produce a gradual hardening of its sap vessels, a thickening of its bark, and the enlargement and density of its head, all of which can be obtained by a gradual opening out, it is too often placed in a position where all these qualities are required, while not one of them has been developed. The result of such treatment is that through sudden exposure permanent injury is inflicted upon the sap vessels. All this might be prevented by a gradual removal of the selected tree into a soil and a situation somewhat similar to that for which it is ultimately designed; or, if the tree be of large dimensions, by such a gradual clearance of surrounding objects as shall secure for it a proper hardness of constitution before its final removal. The trenching round and cutting off of the larger straggling roots, though condemned in some quarters, should by no means be neglected, as the fibrous roots, afterwards formed in abundance where good soil is supplied, enable the tree to start at once with a vigorous growth. But the time allowed for the production of these should be proportioned to the size of the tree and the quality of the soil in which it stands, as the poorer the land the longer the period required.

Where single trees are pitted-in upon wet soils, some provision should be made for carrying off the superfluous water, which otherwise drains to the holes in large quantities, in consequence of the looseness of the soil. The only sure preventive for this is a thorough trenching of the whole of the intermediate spaces in the case of groups or clumps of trees, and the formation of some kind of outlet in that of single trees. Where time will not permit of an entire trenching before planting, the work may be carried out afterwards, and the soil thus loosened will greatly aid the extension of the rootlets.

The common tree-guard, such as we frequently see placed around single trees, is much too small for the purpose, and, as it generally forms the best rubbing place for cattle, the soil around the outside of it is often the hardest and worst trodden in the whole park. Where guards are necessary, they should be of sufficient extent to allow of the soil being well dug around and beyond the roots for the first few years after planting. The advantages of planting and fencing-in clumps are not confined to those afforded by the opportunities of intermediate cultivation; there is also the incalculable benefit of mutual protection.

While the characteristic of the mass is simplicity, that aimed at in the group should be variety. Groups require to be differently arranged according as they are to be viewed from one direction only—as when they stand near the margin of a wood and can be seen only from open quarters—or when they occupy more exposed situations and become accessible on all sides. In the latter case, if they stand on level ground and consist of one kind of tree only, considerable variety may be produced by thinning the outsides of the clump and allowing the middle to grow more thickly, by which means the trees in the latter will be drawn up to a greater height. Where the group consists of various kinds, the same effect may be produced by placing the fastest-growing sorts in the centre. Better and more speedy effects may often be produced by close planting and early thinning out; for clumps of trees irregularly planted often suffer so much upon their margins that the outside trees become stunted or permanently deformed. Where glades or recesses are intended to be formed, the more lucid trees should stand in the front or line the openings, and the darker masses occupy the more distant parts. But amongst deciduous trees no incongruity, such as that produced by the unfeathered shafts and unsocial tops of Firs, or the thin and meagre expanse of straggling Poplars, should be allowed.

One feature of the English landscape which is deserving of a passing notice is the absence of trees of large size, with the exception of the venerable Yew, from most of our churchyards. The slowness of the growth of this tree, especially in the open spaces generally devoted to the burial of the dead, is probably the principal reason why so few are now to be seen springing up to take the places of those falling into decay. In ancient times the Cypress adorned, or

rather lent its gloom to, the burying ground. For the higher grounds of our country churchyards, many of which are so picturesquely situated, the Cedar seems to be well adapted. In rapidity of growth it far exceeds the Yew, and probably it yields very little to it in point of longevity.

Pluckley, Kent.

A. J. BURROWS.

RHODODENDRONS AT KNAP HILL.

THERE is nothing in the shape of flowering shrubs that approaches the present race of Rhododendrons for their distinct beauty and great variety; and as they have now for many years been seen in and about London, as well as other places, with their flowers opened under canvas, they are wonderfully effective. So treated the light varieties are extremely pure in colour, even more so than when out in the open air; but the deeper coloured kinds suffer to some extent, their true shades being wanting. With a view to seeing them as they are when fully exposed, I lately looked in at the Knap Hill Nurseries during the time when the plants were at their best, and jotted down a few of what I considered the very best and most distinct and beautiful, alike unexceptionable in both their flowers and foliage, for it is well to observe that, however fine the flowers are, if the plants at the time of blooming are deficient of leaves through their inability to stand the winter weather, or to any extent susceptible of injury thereby, it militates greatly against them. Amongst these Rhododendron hybrids there is no description of leaf that I have seen equal to that of the old Catawbiense, a species which appears to impart to all its descendants a like habit of plant as well as character of leaves.

The following sorts were in excellent condition: Lady Armstrong, an old but beautiful kind, rose, heavily spotted; Scipio, rose, with deep spot, fine both as a standard and bush; J. Marshall Brooks, scarlet, spotted with deep bronze; Michael Waterer, crimson spotted; Mrs. Shuttleworth, scarlet, almost white in the centre, beautifully spotted; Sigismund Rucker, magenta crimson, with a deep solid blotch almost black (this is a magnificent variety in every way); Mrs. Henry Ingersoll, clear shining pink, pale yellow centre, heavily spotted; Mrs. John Clutton, white (for purity of colour and general quality one of the very best); Fastuosum fl.-pl., semi-double, very large truss, colour mauve, very beautiful in itself, contrasts well with any other shade; Old Port, deep rich plain colour, very effective; Brayanum, rose-scarlet with light centre (old, but still at the head of its colour); Snowflake, pure white, fine and distinct; Caractacus, crimson purple, large and fine; delicatum, blush spotted with brown; Frederick Waterer, crimson; Othello, crimson purple; Nero, rosy purple, deeply spotted; Lady Frances Crossley, pinkish salmon; Mrs. Mendel, pink shaded with white, yellow centre; lucidum, deep lilac spotted with brown; James Nasmyth, lilac blotched with maroon; H. W. Sargent, crimson; Helen Waterer, white centre with a crimson edge; roseum elegans, colour rose, old, but in its way not yet surpassed. Of unnamed seedlings I remarked one in particular, pale violet in colour with yellow blotch. Another, pure white, with deep crimson spots, tinged with pink: if I were asked to confine my selection to two varieties, one light and one dark, I should take this to represent the former colour, and Sigismund Rucker for a dark. Amongst the large number of fine Rhododendrons now in cultivation, the above may be relied upon as not likely to be surpassed.

P. G.

The Flowering Ash.—There has lately been overhanging the village green at Bedford a fine specimen of the *Fraxinus Ornus*, or Flowering Ash, in beautiful bloom. The heads of bloom, borne at the extremity of every small twig, almost resembled in form and inflorescence as well as colour the feathery spikes of the *Hoteia japonica*, though perhaps more drooping, like the elegant heads of the Pampas Grass. This is one of those trees so rare in gardens that one may visit hundreds and not find it. As a flowering tree it is one of the most beautiful, and yields the palm to none in the graceful elegance of its bloom. I have met with but one previously, and that, a smaller tree, growing in the pleasure grounds of the Wilderness, near Reading, a part of the once famous White Knights' estate. A peculiarity of that tree was the excessive size of the base of the stem of the common Ash on which it was grafted, and which was more than twice the diameter of the scion. In planting in more recent days, the desire for varieties of the *Pinus* family, with their erect and formal outlines, has largely contributed to keep many of our most beautiful flowering deciduous trees in the background. Perchance the marvellous wealth of bloom found on all such this year may again tend to revive that liking for flowering ornamental trees that existed in the days when these choice Ash and other beautiful trees were planted. Crabs, Peaches, Pyrus, Laburnums, Horse Chestnuts, Almonds, double Cherries, Tulip trees, Paulownias,

Fraxinus Ornus, pink and scarlet Thorns, white Mespilus these and many others tell what a wealth of bloom and beauty is to be found by the planter among our deciduous trees.—A. D.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Paulownia imperialis at the Knap Hill Nurseries.—From time to time we hear of this tree producing flowers in some part or other of the country, but the blossoms are generally few and far between. Such, I understand, has hitherto been the case with the Paulownia at the above place. It was planted some twenty-five years ago, and has now reached a height of about 30 ft., the spread of the branches being about as much. When I saw it recently it was well clothed with deep purple-shaded lilac flowers in shape not unlike those of a Pentstemon, but much larger. This tree is very late in leafing, and blooms in a quite leafless state; the flowers are produced from the last season's wood, in this case clothing some 9 in. or 12 in. of the extremities. It has a distinct and singular appearance; the colour, so uncommon in arborescent subjects, is seen to the best advantage at some little distance off when the sun is shining upon it.—T. BAINES.

The Eucalyptus in the Isle of Wight.—The Eucalyptus tree has escaped in some places in the Undercliff from the effects of the late severe and protracted winter, the worst I have known in this island during my sixty years' experience of it. This tree has less to fear from our frosts than from our winds charged with sea-spray. It requires to be planted in the centre of a screening belt. It is not likely to add much to the beauty of foliage, except by way of contrast.—LAURENCE PEEL, in the *Times*.

Paulownia imperialis.—The Right Hon. H. P. Vereker, of the Pitts, Isle of Wight, in a letter to the *Times*, reports that "in the pleasure grounds at Binstead there is a fine specimen of this tree, which, planted in 1852, has flowered abundantly for the last ten years. It overtops the forest trees around. When viewed from above, the effect of its carpet of light violet-blue flowers is extraordinarily beautiful in contrast with the dark foliage around, reminding one of those bright-flowering trees which are rarely to be seen outside the tropics."

Eucalyptus globulus at Killarney.—Two of the loftiest and most perfect specimens of this Eucalyptus that we know of are those at Dinas Island, Killarney. We are gratified to learn from Mr. Campbell, forester at Muckross, that it has come quite safely through the late severe winter. Mr. Campbell states that he recently measured the larger one of the two, and found it to be 50 ft. in height, and 2 ft. 6 in. in girth.—*Farmer's Gazette*.

Two Hardy Shrubby Plants of the Central Nevada region, writes Prof. Sargent, in the *American Journal of Science and Art*, may be mentioned which, from their beauty, are especially worthy of introduction to cultivation. (1) *Cowania mexicana*, a large Rosaceous shrub, nearly allied to *Cercocarpus*, with elegant pinnatifidly-lobed leaves, and large and very abundant yellow flowers; and (2) a large shrubby *Spiraea*, *S. Millefolium*, with the foliage of *Chamaebatia*, but a larger and more striking plant, and perhaps the most elegant of the genus.—*Florist*.

Street Trees.—We have read with much interest Mr. Dennis's remarks (p. 506) on street trees, and while fully agreeing with what he has stated respecting planting, &c., we should like to say a word or two about the varieties best adapted for that purpose. In the first place there can be no question about the excellence of the Plane for street planting, but while admitting the usefulness of the black Italian Poplar, we consider *Populus canadensis nova* much better for the purpose under notice, as in rapidity of growth and appearance of foliage it far surpasses the black Italian. Avenues of this tree may be seen at Wimbledon Park, where we planted it along with the Oriental Plane.—J. CHEAL & SONS, *Loughfold Nurseries, Crawley, Sussex*.

The Daphne japonica variegata is an evergreen sweet-scented flowering shrub, which, though old, ought to be more extensively grown. It is hardy, or very nearly so, since we learn that a bush of it some 3 ft. high and nearly as much across, stood out for many winters, until removed to make way for alterations, at the Great Berkhamstead Nurseries, where it used to scent the whole quarter on which it stood. It is a remarkably free bloomer, hundreds of young plants there in the cold pits being in full blossom, and not more than 2 in. or 3 in. in height. It has, as is known, something of the aspect of *D. indica* or *D. odora*, but appears to be hardier than these. The flowers are tinted with a flush of pale purple, and deliciously scented, and though perhaps scarcely to be called showy, are very pleasing in appearance.—*Florist*.

Spiraea trilobata.—One of our common *Spiræas* has pleased me greatly this season, viz., *S. trilobata*. Though long familiar with the plant, I had apparently never before so fully realised the charm of the graceful curves of the branches, the delicacy of the leaves, and attractive set of the flower. *Spiraea Reevesiana* is always beautiful late in spring, both in flower and general habit. It has, indeed, gained the lovely name of Bridal-wreath *Spiraea*, but to me either *S. Thunbergi* or *S. trilobata* merits more justly this honourable title. *S. trilobata* bends almost into semicircles, its branches being laden with exquisite rosettes of pure white flowers. Scarcely any cluster of sprays is more beautiful for the decoration of rooms than the curving branches of this *Spiraea*. Old shrubs like these should not be neglected, which I fear is too much the case with *S. trilobata*. It may not be amiss to note here the importance of pruning *Spiræas* immediately after they have done flowering. Not only is the bloom rendered more abundant by thus pruning, but the foliage also is greatly improved.—*Rural New Yorker*.

Effects of the past Winter on Shrubs, &c.—In a park situated in a valley about 120 ft. above the sea, and on soil originally a heavy clay, the Cork and some *Ilex* trees, the common Bay, the common *Laurustinus*, and *Olea ilicifolia*, are much browned. A tree of *Magnolia grandiflora*, quite unprotected, *Aralia japonica*, *Osmanthus*, *Azara microphylla*, *Eleagnus variegata*, *Onaria Hasti*, *Raphiolepis ovata*, *Skimmia oblata*, male and female, *Viburnum latifolium*, *Berberis Darwini*, are uninjured. A large *Chamaerops Fortunei* looks as handsome as ever now its curtain of mats has been removed. Both in the park and in my own small, wall-girt, town garden, *Ceanothus azureus* (15 ft. high), *Escallonia macrantha* and *alba*, unwisely pruned in the autumn, *Benthamia fragifera*, *Griselinia macrophylla*, *Buddleia globosa*, *Cistus angustifolius*, *Hypericum patulum*, were nearly killed, but are now sending out new shoots. The small-leaved *Myrtle*, *Veronica Hendersoni*, *Fabiana imbricata*, are killed, while on the same wall a large plant of *Daphne indica rubra* is only browned, and blooming freely. *Eulalia variegata* is renewing its beauty, whereas the *Pampas Grass* and *Arundo Donax* have scarcely recovered; the latter has suffered least. Some *Tritomas* are killed and *Scilla peruviana*, but all other bulbous plants are uninjured.—J. S. BARTRUM, *Bath*.

Hardy Azaleas.—At the Knap Hill Nursery there is now a completely distinct break of hardy Azaleas yet unnamed or brought before the public. They are the result of many years' work in crossing, often repeated until the flowers of some of the best would, at first sight, scarcely be recognised as belonging to the hardy section of Azaleas. I saw them in bloom a short time ago and took notes of several; the petals are 1 in. broad, some pointed and recurved as in the well-known Ghent varieties, others blunt and rounded, so much so as to closely resemble the ordinary Chinese and Indian greenhouse hybrids, long so generally cultivated. In colour they run through all the shades of red and crimson, yellow and bronze, pink and flesh, to white. In addition to the immense improvement in the character of the flowers another object has been kept in view, that is, to keep on raising from such as showed a disposition to produce plenty of leaves before the bloom opens; not being furnished with leaves is a defect in the Ghent varieties. This has been secured along with a late habit of flowering; they are quite a week behind the Ghent kinds, which places them out of the danger of spring frosts. They will form a most important feature amongst hardy spring-blooming shrubs.—P. G.

The assegaïs used by the Zulus are described in Poter's "Dictionary of Military Science." The name of "assegai," or "hassagaie," is derived from the tree from which the wood is generally taken which is used for making those weapons. The tree, the botanical name of which is *Curtisia faginea*, is called "hassagaie" by the Zulus.

Dewponds.—These are, to the inexperienced and the unobservant, myths; but they are facts of considerable importance to farmers, and bear direct relation to the water supply of villages. Of their interest for the archæologist we have agreeable illustration in the paper contributed by Sir George Duckett to the April part of the "Wiltshire Archæological and Natural History Magazine." It is entitled "Observations on the Water Supply of some of our Ancient British Encampments," and is an endeavour to solve the curious problem of how water was obtained within ramparts situated upon high levels or hills. The author decides that rain water was collected in deep pits or excavations formed within the area of such entrenchments, the reservoirs being rendered watertight by "puddling." The pits when once full would be kept supplied not only by rains, but by the aqueous vapours and mists which hang about the tops of high grounds. The editor of the magazine in question adds a note to confirm Sir G. Duckett's theory, and remarks that of late the Wiltshire farmers, having learned the value of "cloud ponds" or "dew ponds," have formed them at much expense on the tops of the hills.

PROPAGATING.

THE AUTOMATIC BUDDER.

THE budding season is late this year, but it promises to be successful, inasmuch as, with so much sap alike in scion and stock, the buds are likely to come out and also go in clean and well. But it is this getting of the buds out and placing them in quickly and neatly that is at once the secret of successful budding and the plague of amateurs and not a few professionals. Hence, were it possible to have some better or more effective mechanical help to budding than a common knife, such invention could not fail to become as popular as it would be useful. Messrs. Ward & Garrard, of Ipswich—the one so universally known as one of the most successful cultivators and raisers of Roses, and the other as a clever inventor—have, after many attempts, brought out a budder that does its work in a rapid, easy, and perfect manner. I have examined and tested it in various ways, and think it only fair that the inventors should be permitted to introduce this useful implement to your readers in their own words, which by no means exhaust, far less exaggerate, its merits:—

"The object of this invention is to facilitate the art of budding. Notwithstanding all the instructions that have been given, budding is still a somewhat difficult and delicate operation. However handy the budding knife is at present in the hands of practical experts, it is at best ill adapted for the purpose, and difficult to handle, especially by amateurs. The operation of budding often proves a failure by the bark being improperly raised, and by the danger to the bud by insertion. All these risks and difficulties are avoided by the use of the new Patent Budder. The transverse cut, so injurious to successful budding, is by its use dispensed with. The operation is of a very simple description—the bud being cut in the ordinary way

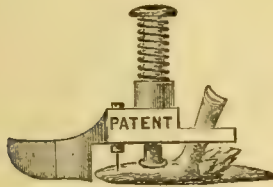


Fig. 1.



Fig. 2.

is at once placed on the needle point as shown in fig. 1, being then ready for the next operation of insertion; press the cutting edge of the Patent Budder on the bark, moving it gently along a sufficient distance to receive the bud. The bark will then be cleanly cut and opened, the cambium uninjured. By touching a small spring with the finger, the bud is pushed from the base of the budder, and left in the best position for speedy and healthy growth. It has been carefully tested during the last budding season, and after many expensive and exhaustive experiments, the art of budding is successfully placed within the reach of all, and in the hands of professional budders the result is being able to accomplish this operation six times quicker than by the ordinary method. It is confidently anticipated that a complete revolution will be effected in the budding of Roses and fruit trees by thus simplifying the process, and bringing the fascinating and delightful art of budding within easy reach of all."

D. T. FISH.

PROPAGATION OF PINKS.

WHILE Carnations and Picotees are increased by layers made at the end of July and in August, Pinks are propagated by means of cuttings or pipings, and this is done in June or early in July—later this year than usual because of the general backwardness of the season. Where Pink piping is largely done in consequence of a great stock being wanted, it is the usual practice to make up a bed of manure and leaves so as to get a gentle bottom heat; on this a layer of suitably light sandy soil is put, and the pipings put in in squares, centres, &c., according to the slope and dimensions of the hand-lights placed over them. The cuttings are put in thickly and kept shaded from the sun, and a very large majority will take root. It is not always convenient to make up a bed, and it is not difficult to strike pipings in other ways. Mr. James Clark, of Bury St. Edmunds, the raiser of some very fine forcing Pinks, makes up a bed between his Gooseberry trees, providing a soil with plenty of sharp sand in it, and inserting his cuttings; he puts hand-glasses over them, thus

raising numbers of plants, and is indeed very successful. Pinks will root as freely under a north wall as anywhere, and they require less attention in the matter of shading in such a position. A good mode of making up a bed under a north wall is to prepare a layer of horse manure that is nearly deprived of its heat, put it together thoroughly wet, and beat it down with a spade to a level surface to a depth of 9 in. or 12 in., which will be quite sufficient to keep worms from disturbing the young plants. On this should be placed 3 in. of compost suitable for rooting the pipings in. This should be used in a moist state, but not wet and clogged with moisture, and it should be made smooth on the surface. A good compost for Pinks is made up of leaf-mould, or any decayed vegetable mould, and silver sand sifted fine, equal parts of each. In the absence of the above materials, a good free sandy loam will answer, but preference should be given to leaf-mould and sand, as it is cool and retentive of moisture.

Pink cuttings or pipings should be made from the young wood of this year's growth, and when these are removed their lower leaves should be stripped off to within two or three joints of the top of the cutting; then, with a keen-edged knife, the lower part of the shoot should be cut away close under the joint selected for the base of the piping. When all to be put in are prepared, it is a usual practice to throw them into water for five or seven minutes to stiffen. The piping bed being ready, the pipings should be put into the soil to the depth of $\frac{3}{4}$ in., and the soil pressed firmly about them. The pipings require to be about 1 in. apart each way. When they are inserted a good sprinkling of water should be given, and as soon as the foliage has dried a hand-glass should be placed over them. In three weeks or so the plants will begin to root, and at this period the hand-glasses may be removed by degrees, first lifting them 1 in. or so on one side for a day or two at a time, then raising them all round, and in a week or so they may be removed altogether.

There is now a large collection of the beautiful laced Pinks in cultivation; if any one is disposed to try his hand at cultivating a few they can be had through any nurseryman. In addition, there are some beautiful border Pinks that are most useful for forcing purposes; of these we may name—Duly Day, deep pink, heavily laced with bright red; Lady Blanche, pure white, does well grown in pots; Lord Lyon, deep rosy-purple, very fine, free, and otherwise good; Mrs. Moore, pure white, with dark centre; Newmarket, a self flower of a reddish-purple hue; and Rubens, with pleasing dark flowers. I have found some of these to provide useful plants in autumn by top-dressing them with a light sandy soil in July; during the summer the side-shoots root into this, and good plants can be had. Lord Lyon is in particular an excellent border variety. R. D.

Heating with Hot Water at Swanley.—At the Swanley Nursery there are a series of low pits, a single light in width, eight in number, each 100 ft. in length, the peculiar arrangement of the pipes for warming which is worth noting. Instead of lying just above the surface of the bottom, or in a cavity round the side in the usual way, the pipes—a single flow along the front, returning on the back—are elevated right up to the under side of the rafters. The flow-pipe in each pit is only 1 in., the return 2 in., which, as the pits are shallow, have been found sufficient to preserve the plants through the winter. These consist of Pelargoniums, Lantanas, Verbenas, Fuchsias, and similar soft-wooded material. Mr. Cannell says that with this arrangement, i.e., the pipes above the heads of the plants, he finds very much less loss of leaf through the winter than when they lie on or near the bottom, where the heat from them naturally causes moisture to rise and to condense on the leaves. So marked has this been during the severe winter through which we have passed, necessitating a long continuance of the use of fire-heat, that the plants have never so much as once needed picking over or other attention in a similar way, and nothing need be healthier than they now are.—P. G.

AMERICAN NOTES.

"Pussley" or Purslane on the Table.—"Pussley," in the older parts of the country at least, is regarded as the representative weed. To be "as mean as pussley," is a common adage. "He lets pussley get ahead of him," is applied to a slack, inefficient cultivator, for in these hot July and August days one must be smart if he keeps his garden free of "pussley." In midsummer days, when Peas have gone, and the flush of sweet Corn, Lima Beans, and other late garden products has not come, "try Pussley"—*Portulaca* if the Latin name sounds better, or *Pourpier* if the French is preferable. We have passed months and months when "pussley," gathered upon the far western plains, was the best green we had. We have tried it since, and can assure those who do not know it as a table vegetable, that it is most acceptable. For ourselves, did it not grow of itself, we should follow the example of the French, and cultivate it; they consume it as a salad and in soups, besides cooking it after the manner of Spinach, or "greens." It should be taken when growing rapidly and its fat stems snap short and tender, and treated like Asparagus. In looking at an article on its culture in a French work on gardening, we find it ends thus: "We know of no injurious insect that attacks the *Pourpier*." Neither do we—we wish we did.

The Massachusetts Horticultural Society offers a special prize of 25 dollars, for the best essay on each of the following subjects: Culture of Flowers and Foliage for Winter Decoration and the Market, with a list of the most desirable varieties; Profits of Farming and Gardening in New England; The most promising new Hardy Ornamental Trees and Shrubs, and their tasteful and effective Arrangement; Upon any Special Action of Fertilisers, illustrated by Accurate Experiments; Upon Flowers for the Home, with lists of the best Annuals, Herbaceous Perennials, and "Bedding Plants." These prizes are designed to elicit new facts, and preference will be given to essays which add the most to our stock of information. Competition open to all. For further information address Robert Manning, Secretary, Boston, Mass.

Silver's Berry Picker.—This is rather a berry-holder than a berry-picker; it consists of a small rubber cup, so held by a loop around the other fingers as to leave the forefinger and thumb free. Its chief use is to avoid the holding of small berries in the hand until enough are gathered to transfer to the basket. For such small fruits as raspberries, huckleberries, &c., it will, no doubt, be found convenient.

London Purple—an Insect Poison.—In April last we announced a new poison for insects, called London Purple. Paris Green is a compound of Arsenic and Copper, and must be prepared direct. London Purple is a compound of Arsenic and Lime, quite as poisonous as the other, but being an incidental product, formed in another manufacture, it is much cheaper. It is artificially coloured of a deep purple, to guard against accidents in its use. It is in a state of very fine division, and it is claimed to be equally efficacious with the Green when used in one-fifth less quantity. Like that it is applied with water or diluted with flour, plaster, or other powder. Recently we have received, from those who have used it for the Potato Bug, testimony as to its complete efficacy. It has also been found to effectively destroy the canker-worm. Mr. Whitney, Nurseryman at Franklin Grove, Ill., writes that the canker-worm took possession of an orchard of 25,000 apple-trees, besides attacking his nursery stock. The use of 12 oz. of London Purple in 44 gallons of water, applied by means of a force pump, destroyed the worms in a short time.

A Late Magnolia.—*Magnolia hypoleuca* has been mentioned and commended more than once for many noteworthy qualities. It is late, blooming in mid-June, creamy-white like *conspicua*, and moreover of a scent so sweet that for the want of a truer comparison, I will liken it to the combined odour of Strawberries and Bananas. I know of no *Magnolia* so delicious, unless it be the tender *M. fuscata*. Now all this is a great deal for a single species to possess in the way of delightful qualities. But Nature seems disposed to give even more, for the foliage of *M. hypoleuca* is simply exquisite. I refer more especially to the young foliage, although the older leaves have fine red stems, and are glossy green on their broad surfaces. But the young leaves, with thinner, more delicate texture, show this red in the veins, and even farther throughout the general green to the extent of a faint tint or tone. The result is a suffusion of most delicate purples lined out with red veins. Held up against strong sunlight the effect is greatly enhanced by the translucent character of the leaf. Portions of the foliage in ordinary lights thus assume a curious bronze colour, as a result of the mingling of shades, and the distinct white of the under side makes the appearance still more remarkable. I dwell particularly on the foliage of this new and rare *Magnolia* that I may enter a plea for the beauty of leaves generally.

Flowers are so valued and set above mere foliage, that the latter, though in many cases quite as exquisite, receives scant justice.—SAMUEL PARSONS, in *Rural New Yorker*.

Weeds.—However well a plant may be established, and the ground is filled with roots and root-stocks, stored with nutriment, each inch of which will make a new plant, every attempt this plant makes to grow will exhaust a part of this underground store. It cannot increase this stock without leaves. If kept from producing foliage, this accumulated store must in time be exhausted. Keep down the leaf-growth and the plant must die. It is only a question which will hold out the longest, man or plant. There are few who will give the needed thorough work; if the plant does not yield to a few hoeings or cuttings, the task is given up. There is perhaps no worse weed in existence than the so-called Horse Nettle (*Solanum carolinense*), which is actually, in parts of Delaware and Maryland, driving people from their holdings. It is said, and generally accepted, that the plant cannot be killed. A friend in Delaware, a good botanist, determined to put his philosophy into practice. He tried the Horse Nettle; as soon as a shoot appeared, off it came; he admits it was a hard struggle, and that to clear it out would cost all that the land was worth—but it can be done.

Dried Persimmons.—Not the "Simmons" of which the Southerners make their "Simmon beer," but the true Japanese Persimmons, several times larger than our native fruit, and as much better as they are bigger, have been sent us by Mr. Chas. H. Shinn, of Niles, California. The Japanese Persimmons are of various sizes and shapes, when fresh, and present a similar variety when dried. In taste they are much like Figs, and if offered in the market would no doubt meet with a ready sale. Mr. Shinn does not state, in sending us the specimens, whether they are from fruit grown in California or are imported from Japan in the dried state.

A Ladies' Garden Club.—A correspondent, well known in horticultural and botanical circles, thus writes: "The ladies of our street have got up a Garden Club! They have got a President—the most experienced plant-grower of the lot—and a Secretary, and a record-book, and they hold meetings once a week, in the afternoon. They won't take in members out of our street—they have got to draw the line somewhere—and they think that a dozen or two women are quite enough for one gathering, whether they all talk at once or take turns. They take two or three horticultural magazines or papers among them, and are going to subscribe for more. At the meetings they read aloud some of the articles, and discuss them, and each one gives an account of her own doings and raisings, how she has managed to get up Sweet Peas, or made Nasturtiums blossom all winter in the parlour, or carried tender plants through the trying season. They are now getting up their orders for flower seeds, and considering what kinds it is best to have. The way I came to know about it is, that I am a bit of a botanist, and know the names of things, and what are annuals or perennials—(per-annuals, as an old neighbour of mine used to call them)—and can tell them what sorts of things a *Calonyction speciosum* and *Zauschneria californica* are, and if they are hardy. So they chose my wife, and even wanted to make her President, though she is not strong in flower growing, and, as to names, gets *Begonia* and *Bignonia* mixed up badly—not for want of knowing the two things, but forgets which is which. So through her and the questions she brings to me, I get a good inside view of the operations. Seriously, this club is useful, and I wish to commend it as an example.—G. A." [This is an example to be heartily commended, and perhaps in a large town small clubs like the one described may be more effective than larger ones. Vineland, N.J., which has been foremost in many good things, has long had a floricultural society composed, if we mistake not, exclusively of ladies, and much of the prosperity of the place may be ascribed to its influence. There are few pursuits in which association is so helpful as in gardening, and clubs of this kind are useful.]

Pigeon-berry or Poke in the Garden.—What is known as "Pigeon-berry" in New England has various other names in different localities; among them are "Poke," "Garket," "Cocum," "Cancer Root," "Skoke," "Skoka," and "Pecatacelleloe"—which last quite puts to shame its botanical name, *Phytolacca decandra*. Whoever has not eaten the tender, just-developing shoots of this, dressed as Asparagus, or as Spinach, has missed one of the choicest of vegetables. It is sometimes compared to Asparagus, but it is not like that—it is a thing by itself, and as good in its way as is Asparagus in its. Knowing from early youth the great excellence of—must we say it—"Pigeon-berry greens," it has long been in the writer's mind to sometime try what cultivation would do for it. In this, as in other cases, "sometime is no time at all," and the only true way is to carry out such intentions at once. As to the "Poke," we have been anticipated. The idea is ours, but some one else has put it in practice, and that some one else is—a lady. We have only imagined how excellent improved Poke must be, but our Illinois cor-

respondent has the advantage of us—she knows it. The lady transplanted young seedlings all along her garden fence; she also had large roots dug up and set out. From these last she says, "We have had the finest, fattest, Poke-berry greens ever eaten." In answer to our suggestion that the tops, when mature, would occupy too much room, she writes, that when the plants get well up she has them cut off at 3 ft. or 4 ft., and that this leaves foliage enough to mature the root.—*American Agriculturist*.

BEARWOOD.

FEW places are richer in landscape beauty than Bearwood, the residence of Mr. John Walter, M.P. It is situated near Reading, on gently rising ground, and is surrounded by fine woodland scenery, the woods mainly Beeches, amongst which there are some of the finest examples with which we have yet met; some of them are of

past an uninterrupted display of flowering shrubs, which are planted in bold groups, with irregular natural-like outlines. The Rhododendrons—except the later flowering kinds—and the brilliant Ghent Azaleas, of which there is a large collection, are for the most part past their best, but the shrubberies are now gay with fine masses of Kalmias, consisting chiefly of *K. latifolia*, with its glossy deep green foliage and dense clusters of wax-like blossoms varying in colour from a delicate blush to a deep rosy crimson. Other kinds of showy-flowered shrubs such as the different species of *Berberis*, *Philadelphus*, *Syringa*, *Escallonia*, *Roses*, and beautiful flowering shrubs belonging to the Pea family, and a host of others, are interspersed with the preceding, or planted in isolated groups. Every kind of shrub appears to thrive here with unusual vigour, especially the Rhododendrons, Azaleas, and Kalmias, though planted in the soil natural to the place, a sandy clay and marly loam, without a particle of peat; nevertheless huge clumps of Rhododendrons, rising from 10 ft. to 15 ft. and even 20 ft. high, afford sufficient evidence, if any were wanted



In the Gardens at Bearwood

great girth, and are furnished with stately heads which have been wind-tossed for centuries, and which are now the only visible remains of the vast tracts of forest which once overspread that part of Berkshire. The mansion, a fine Elizabethan building of recent construction, occupies the highest point in the neighbourhood, and commands some fine views of the gently undulating country lying to the south and east; whilst in the far distance in a northerly direction may be seen the valley of the Thames. From the house an uninterrupted and well-kept lawn gently slopes to the edge of an ornamental lake, consisting of well nigh a hundred acres. This, though formed artificially, has quite a natural appearance—huge branches of Beeches stretching over the surface of the water, in which are here and there dotted some pretty islets. A noteworthy feature at Bearwood is the absence of all elaborate geometric designs, which are too often met with, defacing extensive lawns, and materially detracting from the imposing grandeur of a noble mansion. Here there has been for several weeks

that a peaty soil is not an indispensable condition as regards the growth of what are termed American plants.

A fine collection of deciduous Oaks particularly attracted our attention. Amongst these are not only grand specimens of the indigenous kinds and their varieties, but also of the finest of the South European and North American kinds. Of the latter, we noticed fine examples of *Q. tinctoria*, *coccinea*, *Prinus*, and others, the foliage of which is highly attractive, being much larger than that of the ordinary kinds, and, in most cases, cut into narrow divisions, rendering the trees even now very ornamental in appearance, but much more so later in the year when they have assumed their autumn tints. Another brilliant autumn tree is the Liquidambar (*L. styraciflua*), of which there are here some noble specimens.

Amongst Conifers we remarked some unusually fine examples, both soil and position evidently suiting their requirements admirably, all being in the most robust health. A fine avenue of Sequoia

(*Wellingtonia gigantea*, near the principal entrance to the mansion, is a noteworthy feature, more particularly as the trees were all transplanted a few years ago from various parts of the grounds, some of the specimens at the time being as much as 17 ft. high; now they are in the most vigorous health, without a failure in the whole avenue. This success Mr. Tegg, the gardener here, under whose supervision the operation was carried out, attributes to the stiff and retentive character of the soil, combined, of course, with the skilful use of the most efficient machines and subsequent attention as regards watering, &c. Amongst these *Sequoias* we noticed a variety with unusually green foliage and distinct in habit, which is not inappropriately distinguished by the name of *viridis*. Amongst the other Conifers that attracted attention were fine specimens of *Picea Pinsapo*, *nobilis*, *Nordmanniana*, *cephalonica*, a grand example of the true *Pinus ponderosa*; also of *Juniperus virginica*, *Abies Smithi*, *Menziesi*, *Douglasi*, and the *Hemlock Spruce*. The finest tree of *Sequoia gigantea* is one planted about thirty years ago, and which is now a noble specimen. Conifers have been judiciously planted amongst the large deciduous trees and clumps of evergreen shrubs, examples of which are represented in the accompanying illustration. We were somewhat surprised to find here an almost entire immunity from the effects of the past winter in the case of even tender shrubs and trees which in some low-lying districts have been severely injured. Such shrubs as *Escallonia* here that were quite unprotected are unhurt, as are also *Sequoia sempervirens* and others, thus showing the advantage of elevated localities for doubtfully-hardy exotics.

The Rosery, an extensive plot devoted entirely to the queen of flowers, contained all the best varieties, and though the present season has been anything but favourable for a fine display of bloom, there is no scarcity here. An extensive rock garden is in course of construction under the direction of Mr. Pulham, and when finished it will be one of the leading features of Bearwood. Round the lake and adjoining woodlands, we now and then came upon a garden in the natural style, in which the Foxglove and other beautiful indigenous plants blended with the green of the common Bracken which carpets the ground under the huge timber trees.

Though an account of the fruit and kitchen gardens at this fine place is for the present omitted, we cannot bring these remarks to a close without alluding to some grand specimens of white *Lapageria* which we saw in passing through one of the planthouses. A plant at each end of the house is trained to the roof, and each runs the whole length of the house and flowers abundantly. They are grown in pots in a compost consisting for the most part of peat with the addition of fibry loam, road scrapings, and a small quantity of well-decomposed manure. W. G.

THE FRUIT GARDEN.

EFFECTS OF SOIL ON GRAPE CULTURE.

THERE are probably few districts in which the ingredients for a Vine compost that would grow Grapes well could not be found; but I sometimes think that insufficient allowance is made for the effects of soil and other conditions in estimating the qualities of Grapes. I believe that there are soils so specially favourable to the production of Grapes and other fruits, that anybody may succeed with little trouble in producing the best examples in every way, while under other circumstances the highest skill and attention might fail to produce equally good results. I do not wish to make apologies for bad culture in saying this, but simply to state a probable fact, into which it would be well worth our while to look a little further. If there be certain soils better than others for the Grape, it would be very desirable to know their composition. Hitherto, most of the directions given on the subject of fruit-tree borders generally have been of the most haphazard description. Each person uses the soil he can most conveniently procure in his own locality; and under the general name of "loam," turfy or otherwise, he recommends it to others whose "loam" may be of an entirely different description, and produce quite different results. Can it be doubted that soils which differ widely in their composition produce a consequent effect upon the plants that are grown in them? All experience answers in the negative. As regards the Grape, not a few facts confirm this. Years ago, speaking from memory, I remember a dispute in the horticultural papers respecting the Broommouth Muscat Grapes, fine examples of which were exhibited at Edinburgh, and which I believe received a prize. These Grapes were thought not to be Muscats by some, because they were entirely destitute of Muscat flavour, and they were pronounced to be another variety, similar in appearance to the Muscat, but without the flavour. It was proved, however, by growing Vine propagated from the Broommouth ones at another place, and along with the true Muscat of Alexandria, that

they were Muscats. Now, here was a case in which the flavour, the great point of excellence in the Muscat, was influenced by the soil—apparently lost, one might say; and I daresay nobody would use such a soil, or one approaching it in quality, if he knew that it would produce such a result.

These facts—which in this country are exemplified only in a fragmentary way—are, it would appear, confirmed on a far more extensive scale in the Vineyards on the Continent. There nothing is better ascertained than that the same variety of Grape produces wine of very different quality, according to conditions of soil and situation. For example, a certain variety of the Grape when grown on the Rhine furnishes a species of hock; the same Grape when raised in the valley of the Tagus yields *Bucellas*; whilst in the island of Madeira it produces the wine known as *Sercial*, which has a flavour quite different from either of the others. Soil also affects the time of ripening of the fruit, and in some of our colder and most sunless districts this fact is worth taking into consideration. At Thomery, Grapes are said to ripen a fortnight earlier in the flinty soils than they do where the soil is deeper and richer. I have observed myself that fine crops were produced, and had been produced for years I was told, from Vines where the soil was not above 15 in. or 16 in. deep. According to Prof. Solley, the Vine-producing soils of Thomery gave 81 per cent. of silica, 7 of alumina, and only $\frac{3}{4}$ of organic matter. Such a compost with us would be reckoned very poor indeed. In this country most Vine-growers advocate a percentage of organic matter equal to, if not in excess of, the inorganic. No doubt such composts produce good crops, for a while at least; but I imagine that in a soil like that at Thomery the Vines would last longer, and produce better flavoured fruit.

A significant feature of Grape culture in England is frequent replanting. Here and there you may find Vines that have been going on for a good number of years, bearing and doing well; but I could point to instances where the work of replanting had to be begun soon after the Vines had reached the tops of the rafters—a practice that may do well enough when the means and accommodation and other circumstances render it practicable, but not one in a hundred can follow it; hence the way to get good crops of Grapes from the same Vines for the longest period is what we need to learn. In the poor soil at Fontainebleau and Thomery the Vines certainly carry as heavy crops as are found under the highest culture in private gardens here; but it may be doubted if Solley's analysis, as given by the late Mr. Robert Thompson, conveys a correct idea of the amount of nourishment supplied to the Vines, for I noticed that the borders were thickly mulched and surface-fed as well, although at the same time fine crops were to be seen on old Vines that were growing in the street, where the ground was paved closed up to their stems. Nor is the quality of the fruit and its maturation alone affected by soil; there is good reason to believe that the fertility of the plant is also much influenced. It is a well-ascertained fact that some Grapes bear well in some places and ill in others, after making every allowance for differences of culture. The *Barbarossa*, for example, is a shy fruiter in some soils and fertile in others; and the same may be said of the *Golden Champion*. Colour also is affected by the same conditions—some sorts colouring always well in certain soils and not in others. My impression of the *Grizzly Frontignan* is that it is a Grape that cannot colour perfectly; it only becomes red. In some cases it gets as red as a good *Red Hamburgh*, and in others the berries are only streaked with red, remaining partially green; and both samples are always about equal in quality, but, if anything, the darkest coloured samples are the best. The finest example of this Grape I ever saw as regards size of bunch, berry, and flavour was much darker-coloured than usual. That Pears and Apples and other fruits are affected by the soil in which they grow there can be no doubt, but it is perhaps more apparent in the Strawberry than anything else. In one place I could grow and force Keen's Seedling Strawberry better almost than any other, and thought most of it for forcing purposes; but here I cannot get a crop worth gathering from it, either indoors or out, though I have persevered with it in every possible way for years. Our neighbours on the same formation have failed with it also, and it is not now grown by us. When forced it makes a fine plant, but proves absolutely barren. J. S. W.

Vicomtesse Héricart de Thury Strawberry.—Some of your readers may remember the introduction of Keen's Seedling Strawberry, which became such a favourite that it was sometimes known as the "gardener's friend." Then there came trooping at its heels, Alice Maud, President, and a host of other good kinds, and now there has appeared in our midst the Vicomtesse Héricart de Thury, which is unquestionably the queen of Strawberries. There is no variety with which I am acquainted that can at all equal it. It has a vigorous constitution, grows like a weed, keeps ever-green all the winter, crops heavily, sets its fruit freely, and is not subject to mildew.—BETA.

THE CHILI STRAWBERRY.

ALTHOUGH the Chili Strawberry is known to fruit growers generally, it is not much patronised in the Paris markets, where it has great difficulty in maintaining its place against other kinds, and even then more on account of its size than for any other reason. Its principal



Chilian Strawberry.

merits are its lateness, and especially the firmness of its flesh, which allows it to be transmitted to great distances without fear of damage. As its name indicates, this Strawberry is a native of Chili, from whence it was introduced into Brest at the beginning of the eighteenth century (about 1712) by a French naval officer, whose



Chilian Strawberry (Flower-).

name, according to the "eternal fitness of things," was Frézier, the French for the Strawberry plant being *fraisier*, which is pronounced exactly in the same way. Be this as it may, one thing is certain, that it has, so to speak, localised itself at Plougastel, in Brittany, on a kind of promontory a few miles from Brest, from which it is only separated by the bay. Here, close to the seashore on a granite soil,

it has flourished for more than a century. One peculiar fact in relation to this plant is that it has fixed itself at Plougastel, where it grows in the greatest perfection, and that it will not grow elsewhere. Whether this is owing to the peculiarities of the climate and soil of Plougastel or not we cannot say; but whenever attempts have been made to grow it in other localities, either in Brittany or in other parts of France—for instance, at Angers, Tours, Nantes, &c.—it has always proved a failure. Shortly after it has been planted it becomes sickly, it refuses to blossom, languishes, and finally dies. Even at Brest, where the climate and soil do not perceptibly differ from those of Plougastel, this capricious Strawberry refuses to grow for any length of time, and it can only be made to blossom by great care and attention. These details were gathered from M. Blanchard, the head gardener to the Naval Hospital at Brest. Thanks to this clever horticulturist, who is also a good botanist, we were afforded the opportunity of visiting the Plougastel Strawberry beds, and in his company obtained the information which we now lay before our readers. The Strawberry beds which we visited were those belonging to one of the principal growers of the locality, M. Barozer. The method of cultivation at Plougastel differs but little from that adopted in other localities, except that some of the growers plant on ridges separated from each other by a trench. M. Barozer, finding that the demand for the Chili Strawberry remained steady, has conferred a benefit on this part of the country by introducing a number of varieties which are better known and appreciated by fruit buyers.

The Chili Strawberry is a sturdy-looking plant which throws out large quantities of runners thickly covered with woolly down. The leaves only differ from the ordinary kinds by the great length of their stalks. The flowers are few in number, are borne on an upright stalk, and are of a yellowish-white hue. The fruit is very large, stumpy in shape, and of a pale glossy red, approaching vermilion in tint. The flesh is firm, the fruit being somewhat compact in texture; it is sweet yet a little sub-acid. The question may be asked whether the Chili Strawberry can be cultivated elsewhere than at Plougastel. Undoubtedly it may, but the climate and soil of the localities chosen must resemble those of Plougastel, which is close to the sea-shore and on a granite soil. In any case, the advantages to be gained by growing this Strawberry are not too apparent. We do not know whether any seedlings of this plant have ever been grown, but it is from this point of view that this variety would be most valuable. Experiments should be made in this direction with the object of determining whether it is possible to cross it with other varieties that do not possess its special characteristics. It should be crossed both ways with some of our luscious fine-flavoured varieties that are only found wanting in their weakness of growth. The Chili Strawberry plant gives abundance of fruit during the months of July and August, when the inhabitants of Brest and its neighbourhood may be said almost to live on Strawberries, devouring them literally morning, noon, and night. The Plougastel Strawberry furnishes us with an additional example of the benefit to be derived from the successful acclimatisation of a foreign plant.—"Revue Horticole."

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Setting Melons in Frames.—In a dull season like the present, if the fruit does not set freely, the best course is to withhold water for a time till a sufficient number are set. The process of setting (as it is commonly called) is very simple. Some may use a camel's-hair pencil, but it is not necessary; in fact, I don't think I have ever seen a pencil used by a gardener for setting Melons. The common way is to look over the frames some time between the hours of twelve and two o'clock, or any time when the pollen is quite dry. Select a mature, pollen-bearing flower, and split the corolla down one side with the finger and thumb. It will easily tear away from its base in the calyx, leaving the little cluster of stamens with their dusty points round the centre fully exposed. If this is brought in contact with the centre of the flower at the end of the fruit, so that the pollen is discharged, there will be no trouble about getting a crop of fruit to set. But sometimes the young Melons turn yellow, and decay before the flower is open; they do not seem to possess sufficient vitality to open their flowers. This is usually the result of planting in light, rich soil, which causes too luxuriant growth for fruitfulness. Melons never thrive well in light soil, placed loosely in the frame. Good sound loam, pressed in firmly, will always give short-pointed growth and robust-looking fruits, with plenty of pollen-bearing blooms. At this season Melons are frequently set by the aid of insects. As they travel from flower to flower they carry the pollen on some part of their bodies, and in this way the fertilisation takes place; but it is not wise to trust to the erratic motions of insects for a crop of Melons.—E. H.

Choice Plums.—Few of the domestic fruits are of so much service to the community as the Plum. It produces one of the most wholesome and delicious preserves, which improves with keeping, and when cooked fresh from the tree, Plums are always popular. In parts of Germany the Plum forms almost the staple food of the country. The Belle de Louvain, a red Plum, was received from Belgium many years since, but except from the fact that its name indicates its birth-place, I cannot find that it has any particular history. The tree is hardy, forms a handsome pyramid, and produces very large crops. It no doubt belongs to the numerous race of Red Magnum Bonum Plums, but it ripens earlier than the old sort, preceding the Victoria, which it rivals in fertility. The fruit hangs firmly to the branch, and is not easily shaken off. Boulouf is a very valuable bluish black Plum. It has been here for many years, under the name of Reine Claude de Jodoigne, and was received from a Belgian nursery. In the "Fruit Manual," Reine Claude de Jodoigne is described as a Greengage, and Boulouf as a cooking Plum. The Boulouf agrees with the description given in the "Journal of the Société Van Mons," vol. i., p. 298: Fruit large, round, dark purplish-red; flesh yellow, juicy, and perfumed, of the highest quality; ripening at the end of September. In addition to these excellent qualities, the tree is a robust grower, but very dwarf in habit, and therefore eminently adapted for garden-culture. Last year (1878), this Plum ripened the last week in September, and was certainly delicious, having all the sprightliness of the Purple Gage.—T. FRANCIS RIVERS, in *Florist*.

The Blistering of Peach and Nectarine Leaves.—Some cultivators, notably I think the Rev. Mr. Radclyffe, profess to prevent blister and to cure it. I confess it is wholly beyond me both as to cause and cure. This spring, for example, our trees passed through the flowering and the early growing stages without speck or flaw. Under a judicious screen of loose boughs they held their blossom, set a crop, and also made clean growth. All at once about three weeks since, the curl overspread them almost in a single night, as if it had been the plague—and it is the plague of the trees, the partial or complete ruin of their beauty for months, and probably also the destruction of next season's crop. Last year we were almost free from blister; this season we are literally overrun with it, and yet it did not follow on the heels of any very severe frosts. Nor were the aphides the producing cause. The blister seemed rather to come first to provide them snuggeries. The fly was several days behind, not in advance of the blister. In fact, I do not believe in the fly as the cause of blister. Coincident they often are—cause and effect never. How otherwise can we account for the fact that aphides are powerless to blister Peach leaves under glass? It would be well to know some of the causes, as it might suggest a more certain method of cure. It may probably arise from stagnation of sap. But that only removes this matter one step further. What practical cultivators want to know is, what causes or what will prevent such stagnation. Can any one tell us?—D. T. FISH.

Fruit-growing at Heckfield.—Readers of THE GARDEN who study the eminently practical remarks of "W. W." on fruit and kitchen gardening from week to week, will learn with interest that what is there so well inculcated is most successfully practised at Heckfield. There are eight Vineries at this place; in the first, a Black Hamburgh house, the crop is just ripe; the last is the Lady Downes house, a span-roofed structure, which produces annually about 6 cwt. of fruit, the bulk of which ripened in September, is cut in January, stored in the Grape-room, and continues to furnish an abundant supply up to the end of May, a period of eight months from the time of ripening. No greater testimony of the value of a Grape-room than this could be given, especially as the Grapes at the end of May are as fresh and plump as when cut. In this house the curious phenomenon may be seen of Vines rooted at both ends; the Vines planted on one side are carried over the roof and rooted at their extremities. In one case a rod has been severed about 6 ft. from the point, and thus is seen the still rarer phenomenon of a plant growing and producing fruit in a perfectly healthy condition through roots existing at its branch extremities only. This experiment might furnish useful hints to those physiologists who are disposed to study the vexed question as to the flow of the sap. Three houses are wholly devoted to Muscats, all in fine condition; some young Vines in a span-roofed house promise to produce noble bunches. In another low house are single or duplicate Vines of Barbarossa, Alicante, Gros Colman, Venn's Muscat, White Tokay, and others; all these are carrying fine bunches. Another house is furnished with a mixture of late sorts, and the big Camellia house has on its roof a grand crop of Hamburgs. There are three Peach houses (two forced and one cool), all full of fruit, and also a fine crop on the walls outside; and the same may be said in reference to Apricots and Plums. The earliest Peach house is a low span-roofed structure some 50 ft. in length, forming over the centre path a perfect arbour of foliage and fruit—the earliest just ripening. Low houses and pits are devoted

to Pines, Melons, and Cucumbers; of Melons the kind most largely grown now is the Earl of Beaconsfield, a handsome green-flesh kind that possesses first-rate flavour. Only one house is devoted to Figs, the one tree that covers the whole of the roof of a lean-to house, producing a succession of fruit for several months. Here ammonia, arising from cow manure that is spread on the border, renders the atmosphere somewhat unpleasant, but it is most healthful for the foliage and fruit. Outside there is a heavy crop of Pears, both on walls and pyramid trees, and also on curved cordons that form a graceful roofing to the centre garden walk. All bush fruits are abundant. A large tree of the Deux Ans Apple growing in one corner of the garden will probably produce about ten bushels of fruit.—D.

THE FLOWER GARDEN.

LIFTING RANUNCULUS ROOTS.

In the days when this beautiful plant was more grown as a florist's flower than it is now, the exact time for and mode of lifting were matters of some import. It was in the days when a good deal of enthusiasm was aroused over what the late Dr. Horner termed "a flower of extraordinary characteristics, uniting in itself properties and endowments of rare and opposite combinations. For we may say of it that it is grand, yet elegant; generous, yet simple; dazzling to behold, yet lovely to look upon." There are some who yet grow the Ranunculus, but they are few as compared with those of a quarter of a century ago. More's the pity, for it is a flower well worthy the high praise which Dr. Horner lavished on it. The taking up of the roots was always regarded as an important operation. If this be driven off too late, it used to be said there was a danger of their putting forth new fibres; an untoward circumstance, which either prevents their flowering the following year, or else destroys them altogether. On the other hand, danger besets the cultivator if the roots are harvested too soon, as the roots pine and shrivel, and bloom weakly; and yet, of the two, this was considered the lesser evil. This was the rule observed in the old days—as soon as the foliage, together with the flower-stems, had turned yellow and withered, it was considered that the roots were ready for lifting; and rather than any risks of new growth should be incurred, it was thought better to remove those indicating that appearance than to wait till the whole were ready. Those who grew for exhibition used to cover their beds with an awning or some such erection, using it to shade the plants when in flower, and this awning was brought out again as a useful and necessary precaution, when the weather, two or three weeks after the flowering period, became warm and showery; but leaving the sides exposed, as by thus keeping off the wet the disposition of the roots to make fresh growth was thereby counteracted.

When the tubers are lifted they should be placed in an airy cool room or shed, where they can be spread out, so that the soil on them might dry gradually. They should be turned over occasionally, especially in damp close weather, so that mildew does not lay hold of them. As the Ranunculus is increased by division of the roots, this process should be performed when they are about half dry, as they separate easily, and the soil can be cleared from the roots without injury. Each sort should be placed in a box, or in one of the divisions of a drawer, or some such place, in a cool dry atmosphere, and kept till planting time comes round again. Collections of named Ranunculuses are not difficult to procure. Mr. Carey Tyso, of Wallingford, still grows this charming flower in quantity, and it is stated there is yet a good demand for named varieties. R. D.

The Striped Forget-me-not.—This, called Weirlegh Surprise, I have grown in quantity, and a fine pot of it was among Mr. Brockbank's herbaceous plants at Manchester. Its flowers are singular and pretty; though the plant is somewhat straggling, it is permanent when produced by means of cuttings, and I should say it is a cross between the blue and the white forms of the *Myosotis*.—THOS. WILKINS, Ormskirk.

Gladioli in Rose Beds.—During last winter we took up and replanted most of our dwarf Roses, having previously prepared some fresh beds for their reception by heavily manuring and deeply cultivating them, and, having a quantity of fine Gladioli bulbs, I planted them in the open spaces between the Roses; they have made excellent growth and promise to be a source of great attraction after the principal bloom of the Roses is over; the foliage, being erect, does not at all injuriously affect the Roses. I intend to allow them to remain permanently, just covering the crowns in winter with Cocoa fibre or coal ashes, as, like many more of your correspondents, I find Gladioli to do best when left in the ground, or if lifted for dividing, the bulbs should be replanted as soon as possible.—J. GROOM.

CHARACTERISTICS OF THE FLORIST'S TULIP.

THE BREEDER.

THE Tulip is perhaps one of the most precious of flowers in the estimation of the florist, because of the extraordinary transformations through which it passes, as well as on account of its possession of other qualities of a not less fascinating character. One singular peculiarity of the Tulip is the extraordinary change which takes place when the seedling breeder "breaks," or, in other words, assumes its proper and permanent character. That a flower which, on its first blooming from the seed, and probably for a series of years afterwards, should (to take the case of a fine Byblemen) present but one dull slate colour with a circle of white at the base; that this flower, so unattractive in its appearance, should all at once, without any apparent cause, completely alter its nature; that the dull slate colour should disappear entirely, giving place to a delicate feathering of rich purple or violet, while the pure white, which was confined to a narrow circle at the base, should spread all over and become the ground colour of the petal; and that the latter and true character should be maintained during the whole of the after existence of the plant, is surely so remarkable a fact in vegetable physiology as to deserve at the hands of the scientific and practical botanist the closest investigation.

Many persons, though well acquainted with flowers, are unaware of the changes through which the seedling Tulip passes. It is four or five years before it flowers, then it takes on the self-coloured or breeder form; but in the breeder state it is easy to class it with the Bizarres, Roses, or Byblemens, according as it may belong to either of these three divisions. Then, at the expiration of sometimes one or two years up to six and seven years, it breaks into its true character, and becomes what is termed "rectified." Why the Tulip should be an exception to the universal law observed in seedling flowers, and have an almost exceptionally intermediate state, passeth knowledge. The practical florist asks of the botanist the why and wherefore of this, and no reply is forthcoming.

It is said that in the whole range and history of plants there is no analogy to this phenomenon. Other flowers will occasionally sport, and blooms will vary in character from the effect of seasons or culture, but these are accidental variations, and although a "sport" may sometimes become permanent, such an incident is to be regarded as an exception to the general rule. The Tulip alone has naturally, and according to the law of its being, two distinct stages of existence: first the breeder state, in which the petals are, excepting the circle of white or yellow at the base, of one dull colour throughout; and, secondly, its broken or perfect state, when it becomes smaller, shorter, and less robust in its growth, and the colour, instead of being dull and diffused all over like a field Poppy, is concentrated on the edge or centre of the petal into brilliant stripes and feathering so sharply and finely cut that the engraver's skill can scarcely do justice to it. No one, however careless an observer of the workings of Nature, can fail to be struck with this wonderful metamorphosis on first being shown a bed of breeders side by side with a bed of broken flowers; and yet, wonderful as it is, it seems to have failed in attracting the notice and enquiry of the many distinguished men who have devoted themselves to the study of plants.

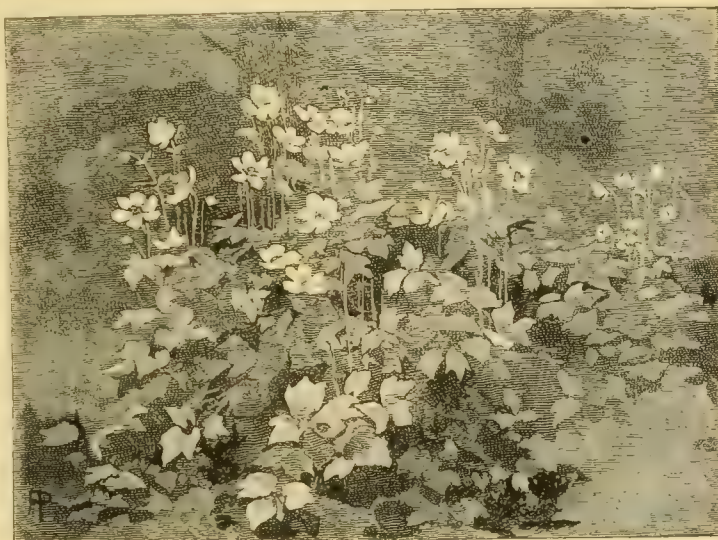
The readers of THE GARDEN will now be able to understand a little better perhaps than before what constitutes a "breeder" Tulip. In all Tulip exhibitions they form a part, for in the breeder state some of them are very beautiful indeed when thoroughly pure, finely coloured, and of good form. But when these beautiful breeders will break into the rectified form—when the floral chrysalis shall develop into the brilliantly-marked butterfly—is not given to men to know. It may be next year; it may not be till the grower has added three or five to the number of those he has devoted to his favourite pursuit.

R. D.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

The White Japan Anemone in the Wild Garden.—Few plants are more lovely in the wild garden than this, and few more suitable for such purposes. The idea of the wild garden first arose in the writer's mind as a home for a numerous class of coarse-growing plants, to which people begrudge room in their borders, such as the Golden Rods, Michaelmas Daisies, Compass Plants, and a host of others which are beautiful for a season only, or perhaps too rampant for what are called choice borders and beds. This is one of the most beautiful of garden flowers, and one which is as equally suitable for the wild garden as the kinds alluded to. It grows fairly well in any good soil in copse or shrubbery, and increases rapidly. Partial shade seems to suit it, and in any case the effect of the large white flowers is, if anything, more beautiful in such places. We have also noticed the flowers to be more lasting than in places where they are fully exposed.

Miniature Flowering Plants.—Cuttings of the leading or well-developed side shoots of *Eranthemum pulchellum* will strike now in bottom-heat, and will soon form very neat and useful little plants, carrying large clusters of flowers, although themselves only a few inches high. The time to take the cuttings is just when the growth is completed and partly ripened—when, in fact, the flowers are in an embryo state, but not visible. In the case of the plant which I have mentioned, the season to take the cutting is about now. Rather large pieces, comprising the ends of the leading shoots, may be taken, and inserted singly in small pots of sandy peat, and be kept moist, close, and shaded from bright sunshine until rooted. Afterwards they may be subjected to the same treatment as the old plants. Miniature flowering plants of many other kinds may be propagated in the same easy way. The leading shoots of *Balsams* and *Celosias* may be struck in small pots in this way—the *Salvias*, especially the winter-flowering kinds, such as *splendens*, that are so useful for the conservatory; also very fine heads of *Hydrangea* blooms have been grown in very small pots in like manner. *Chrysanthemums* are well suited for flowering in a small state, in small pots, and may be obtained either by layering



The White Japan Anemone in the Wild Garden.

the ends of the shoots, or by striking them in a close, shady place. In fact, nearly all soft-wooded plants, after the growth is made and just beginning to get firm, can be made use of, if desired, by simply cutting off the flowering points of the shoots, and striking them in small pots. A very small amount of bottom-heat will suffice, even for stove plants; and others that have been grown in a cool structure, or perhaps altogether in the open air, will only require a cool, close, shady frame. Too much heat will unduly excite, and its effect will be either to force the flowers prematurely, or else they may be converted into growth. There are many uses to which such bright showy little plants can be put. They will carry the large fully-developed flowers of full-sized plants, and will be very valuable for filling stands in rooms; and if an imitation of a large plant is required, half-a-dozen plants of a kind grouped together will effect it.

—E. H.

The Blue Cornflower.—It is well known, in Germany at least, that the blue Cornflower is the Emperor William's flower and colour, and it is the practice to decorate his room with it on his birthday. If its cultivation has failed, Italy or France, or some other country, must furnish the favourite Cornflower, which, in a sense, has become the rival of the Napoleonic Violet; and these two flowers are unfortunately not exactly friendly rivals, like the light blue of Cambridge and the dark blue of Oxford. After the late dastardly attack on the Emperor's life, the Cornflower became the emblem of loyalty and devotion of the Prussian people. Ladies wore Cornflowers in their hats, gentlemen in their button-holes; medals bearing the Emperor's effigy on one side, and a wreath of Corn-

flowers on the other, were worn in bracelets and necklets; note paper was decorated with the favourite flower; in short, it was employed in every conceivable way to testify the loyalty of a people.

Lobelia Lady McDonald.—This is a useful variety, with large blossoms of a pale but pleasing colour. It is somewhat straggling in habit, and looks extremely well for edging vases or hanging baskets, being a most profuse bloomer.—J. G.

Double Zonal Pelargonium Vesta.—This fine variety, raised by Mr. Laxton and awarded a first-class certificate by the Royal Horticultural Society, is somewhat in the way of Wonderful, but brighter. Its foliage, which is deep green, is ornamented with a well-marked dark zone. It will prove a useful kind both for the purposes of ordinary decoration and for market.—M.

Varieties of Lily of the Valley.—We notice a great variety in the habit and strength of these, as shown in Ware's nursery, Tottenham. There are a great many varieties differing much in the size of the foliage, and the size of the flower bears generally an almost exact relation to the size of the leaf. These are important facts for all who love this beautiful plant, and will no doubt lead to the large varieties being much sought for.

Sempervivum Pomelli.—With reference to the *Sempervivum* at St. Alban's Court to which Mr. Williams (p. 512) refers S. Pomelli, I think that he is wrong, as, according to Mr. Baker of Kew, S. Pomelli is a species very near S. piliferum or S. fimbriatum, and instead of being simply distinguished from S. arachnoideum by the tuft of wool at the tip of each leaf, it is quite a different plant and distinct from S. arachnoideum.—E. JENKINS, *Newton Nurseries, Chester.*

Irises in a Cut State.—What beautiful shades of colour one sees amongst Irises! Spikes of them cut and put in vases, garnished with a little delicate foliage, are even more effective than the choicest Orchids, both as regards form and colour. Irises are gradually coming to the front again, and it is well they should do so, if for no other purpose than that of supplying flowers in a cut state.—J. G.

Mud Edgings on the Thames Embankment.—Can anyone explain the object of these? I see them bare and hard in the gardens here, some of them nearly 1 ft. high, with a few plants straggling over them. Surely this habit during a considerable portion of the early summer tends to make a bed stiff and curious looking. The practice is an ugly one, but it may have some advantages, and, if so, I should be much obliged to any reader to state them.—COUNTRY VISITOR.

Veronica Traversi (syn. *devoniensis*).—This is one of the most useful plants in cultivation, forming, as it does, neat, symmetrical evergreen bushes 3 ft. in diameter, now completely smothered with delicate whiteracemes of flowers. For the centres of beds or for isolated positions this *Veronica* is simply unique, and it is one of the finest plants that can be planted in suburban districts, having withstood the severity of the past winter uninjured. In habit it is free, and readily propagated by means of cuttings taken in autumn when the wood is ripe. They should be dibbled in pots and placed in a cold frame during winter. It can also be grown as a pot plant for windows, and it can likewise be utilised in many other ways.—R. A. J.

Bedding Pansies.—The telling effect of colour produced by masses of particular hardy plants has been well illustrated this season in Mr. Cannell's nursery at Swanley. This is especially apparent in the case of bedding Pansies which are grown here in very large quantities, individual varieties occupying breadths sufficient to be most striking, not only upon near inspection but also at a considerable distance off. Most conspicuous in this way were Celestial Blue, Blue Gem (plum colour), Yellow Boy, purpurea (pale mulberry), and Chieftain (medium shade of blue). The dwarf growing Wallflower Harbinger was a compact, even sheet of colour, contrasting well with the pale blue *Veronica gentianoides variegata* and its white variety.—P. G.

Hardy Flowers at Huntingdon.—The best cut hardy flowers I have seen were exhibited by Messrs. Wood & Ingram at the Huntingdon Show. The arrangement of them was most tasteful, the colours being skilfully contrasted, and each species or variety was set up in a loose, natural manner, showing its habit of growth, and with as much foliage as possible. Too often the effect of exhibitions of hardy border flowers is destroyed by the unskilful way in which the bunches of flowers, as they are called, are huddled together, often without any regard to the effective arrangement of the colours, large bunches of the very commonest plants frequently hiding and smothering the few choice flowers that the collection contains. The following is a list of the flowers in the stand to which I am referring, viz., *Scilla peruviana alba*, a fine, robust spike; *Pyrethrum Progress*, the double variety of *Spiræa filipendula*, *Stenactis speciosa*, *Potentilla Etna*, a darker kind very bright and effective; *Allium Moly*, a fine yellow-flowered border plant; *Centaurea*

cœrulea, white Pink, *Veronica candida*, *Iris Xiphoides*, *I. Priscilla*, *I. ventricosa*; *Delphinium elatum*, *D. Wheeleri*; *Lilium auratum*, *L. colchicum*, *L. longiflorum*; *Campanula persicifolia alba*, *Antirrhinum majus*, *Aquilegia chrysantha*, *Pæonia Whitleyi*, *P. albiflora fragrans*; *Veronica saxatilis*, and *Gladiolus byzantinus*. I have never seen any stand of greenhouse cut flowers that could vie in beauty with those of our best hardy plants when properly set up, as they were in this case; and in this age of room and table decoration I know of nothing so likely to bring them back into favour as the proof afforded by such exhibitions of the great value which hardy flowers possess for cutting. E. HOBDAV.

Transmission of Plants.—Everything grown under glass at the Swanley Nursery is of a soft-wooded character, plants mainly that can be propagated quickly, fit for sale in a comparatively small state, which very much reduces the size of packages, and consequently cost of carriage, for in most cases the pots are not sent; transmitted in this way, without pots, even over very long distances, plants of this description are found to carry well, as there is little liability to bruise. Cuttings, or newly-struck plants, in which a large trade is done here, are mostly sent in shallow tin boxes through the post; so enclosed air is excluded and evaporation is reduced to a minimum. The cuttings when received are fresh and plump, a condition which people who have had to deal with flagged cuttings will know how to appreciate.—P. G.

Hardy Plants at Sydenham Hill.—Sheltered from the bleak north and easterly winds few suburban gardens are more favourable for the luxuriant growth of plants than that of Mr. Latimer Clarke, and equally few there are to be found where so much has been done to render a garden beautiful by the introduction of hardy exotic plants. When we visited it the other day the sloping banks were covered with huge clumps of *Rhododendrons*, *Azaleas*, and other shrubs in flower, whilst on the lawns beds were gay with the finest hardy flowers, which formed a striking contrast to the tender bedding plants recently placed in the adjoining parterres, for the well-being of which the present ungenial weather is anything but favourable. Wild gardening is a prominent feature here, and those only who have seen for themselves can fully appreciate the charms afforded by groups of hardy plants when left undisturbed. In a sheltered nook, growing in a peaty soil kept moist by the drainage of the high ground above, was a mass of *Cypripedium spectabile* with stems fully 2 ft. high, each bearing a couple of blossoms varying in colour from almost white to a deep rosy-magenta. Creeping over the surface and thriving with native vigour was the pretty little Ivy-leaved Hare-bell (*Wahlenbergia hederacea*). In the same position the swamp Lilies of North America (*Lilium californicum*, *superbum*, &c.) were thriving admirably; the moist peaty soil and the protection afforded to the young growth seems indispensable to their successful culture. Other kinds of Lilies, such as *L. umbellatum*, elegans, and similar species revel in the stiff loamy soil in the less sheltered positions where they have grown for years undisturbed, and the large size of the specimens and the unusual number of flowers which they bear constitute ample proof that to be successful with them these conditions must be imitated. A rocky natural-looking in style is one of the leading features of this place. It is built of huge masses of rock, and is of considerable height; from its top a stream of water constantly trickles down and feeds a pool below in which a choice collection of hardy aquatics is thriving well. Amongst the latter we noticed the rare *Orontium aquaticum* finely in flower. The beautiful mountain Clematis (*C. montana*) rambles over the rocks along with other shrubs and herbaceous plants, and is gay with its white, starry blossoms. A choice collection of Alpine plants is grown here in pots, and the thriving tufts is sufficient proof that pot culture, in some localities, is preferable to planting on rockeries, &c. The rarer of the crustaceous section of Saxifrages, such as *S. cæsia squarrosa*, *valdensis*, *luteo-purpurea*, &c., as well as *Androsace Laggeri*, *obtusifolia*, *Chamejasme*, *pyrenaica*, and others, thrive remarkably well under this treatment, as does also the pretty *Linaria origanifolia* and *Houstonia cœrulea*, which in some gardens refuses to grow. The Alpine Dianthus (*D. alpinus* and *gracialis*) Mr. Clarke grows admirably; also the Edelweiss and the beautiful *Onosma taurica* and *echioides*, which require to be kept rather dry during winter. One of the brightest-flowered plants in the collection was the scarlet *Ourisia* (*O. coccinea*), which is not often met with in good condition. Amongst the larger-growing kinds in flower, the rare *Eremurus spectabilis* was conspicuous. It is somewhat in the way of *E. robustus*, but scarcely so robust in growth; the flowers, which are membranous and pinkish, are borne on branching spikes from 5 ft. to 8 ft. high. W. G.

Culture of Alpine Plants.—At a late meeting of the Scottish Horticultural Association, Mr. Sutherland remarked that he had found Alpines from high altitudes more difficult to manage than those from lower levels, and he recommended such to be grown in

pots, and kept in cold frames or pits, so as to secure complete control over ventilation, shade, and moisture. He stated, however, that by far the greater number of species, and those by no means the least ornamental, were amenable to treatment as ordinary border or rock-work plants, where, under fairly favourable circumstances, they soon established themselves, and formed a permanent source of interest. In regard to rockwork he held that, provided good drainage could be secured, a low or even hollow site was preferable to such as was high and exposed. So far as soil was concerned, he had found a good loam the most generally useful—such species as required peat, peaty composts, or calcareous soils being comparatively few in number.

Hardy Plants in Flower at Syfleet.—There is much to interest the hardy-plant lover in such a garden as that of Mr. Stevens at Grasmere, not only on account of the abundant variety which an extensive collection always affords, but also on account of the unusual vigour exhibited by many of the plants grown there. To the Delphiniums, which form one of the chief objects of attraction, we have elsewhere alluded. Of the different varieties of *Iris Kämpferi* there are huge masses, in some instances 3 ft. high and as much through, affording proof sufficient that these beautiful plants require a friable, rich soil, well drained, and sheltered—conditions under which they are growing here. On the rockery, the showy *Coronilla iberica*, with its golden heads of blossoms, is flowering abundantly, and is certainly one of the most desirable of the dwarf members of the Pea family, and one which lasts long in perfection. *Malva campanulata* is another fine plant which is equally desirable. It has withstood the winter with impunity, doubtless on account of its well-drained position, and is now gay with pretty pink blossoms. Several *Acantholimon*s enliven the rockery at this season with their lovely membrane-like rosy flowers, which form a pretty contrast to such plants as the Mountain Avens (*Dryas octopetala*), with its pure white golden-centred blossoms and dense cushion-like tuft of leaves; also to the white-flowered form of *Campanula nitida*, a dwarf kind growing about 6 in. high, with numerous blossoms as large as a florin. The most noteworthy of the larger-growing plants were remarkably well-grown examples of the purple *Echinacea* (*E. purpurea*), which is one of the handsomest of the numerous Composites from North America. It grows about 3 ft. high, and has large solitary flower-heads, the outer florets of which are of a violet-purple tint, and droop gracefully. The large-leaved *Achillea* (*A. macrophylla*) is an uncommon as well as handsome species. It is a bold-looking perennial about 4 ft. high, with deeply-cut leaves about 1 ft. long, and broad flat heads 6 in. across, composed of numerous small white flowers, which are very attractive. It is a capital plant for the wild garden, or for places where it would receive no attention. Harebells are grown here extensively, and many of them are now in flower. The finest are *C. Van Houttei*, with long purplish bells, and its near ally, *C. nobilis*, with flower of somewhat the same tint as in the type, and pure white in the variety *alba*. The white-flowered variety of the Nettle-leaved kind (*C. urticifolia*) is remarkably handsome, and should be in every collection. The smaller-growing sorts are represented by large masses; *C. carpatia pallida* we noticed with several scores of flowers expanded on a tuft measuring 2 ft. across, and *C. turbinata*, one of the finest of all the species, thrives here with like vigour. The hardiness of the *Hyacinthus candicans* has been well tested at Grasmere, where it has withstood the past winter unhurt, and is now developing spikes of chaste white blossoms. Another fine plant is the Olympic St. John's-wort (*Hypericum olympicum*), which is one of the most desirable of all the species; here it thrives capitally, and will soon form a mass (2 ft. across) of golden blossoms, which contrast well with its singular glaucous foliage. The Southern Baptisia (*B. australis*) is a very handsome plant in its ordinary condition, but a variety of it which we noticed here is far more desirable, as its flower spikes are much longer, and the purple colour of its blossoms of a much deeper shade, rendering it quite deserving of a distinctive varietal name.—W. G.

Himalayan Primroses.—These do wonderfully well at Ware's. Huge beds of them may be seen there with foliage more vigorous than Dock leaves. Hitherto these plants have been too much coddled in frames and in small pots, and in all sorts of positions which prevented their natural growth from being exemplified. In the place which we name they are in open quarters, and in stiff cold ground, liable to occasional floods.

Pinus macrocarpa.—As an evidence of the rate at which this Californian *Pinus* grows when soil and climate suit it, I may mention that the largest tree of it at Knap Hill was turned out of a small pot about 1839, and the stem now girths 10 ft. Its very distinct appearance when it gets large enough to show its true character commends it to the notice of planters.—P. G.

NOTES OF THE WEEK.

Mutisia decurrens.—There is at Kew, planted against one of the walls near Museum No. 2, a specimen of this beautiful climbing plant, bearing several flower buds which will shortly expand. When in flower it will be well worth a visit, for certainly it is by far the most charming of the Compositæ yet introduced from the Chilian Andes. Nothing can well surpass the beauty of its large bright orange-tinted flower-heads, with their gracefully-drooping, long, narrow, outer florets borne on slender twining branches; the latter being furnished with glaucous green foliage considerably enhances the bright effect of the flowers.

Kniphofia caulescens.—An admirable specimen of this handsome hardy perennial is now in flower in Mr. G. F. Wilson's garden at Weybridge, where it has withstood the past winter with impunity. Its thick stem, terminated by bold glaucous leaves, arranged in a Yucca-like manner, renders it very distinct from any of the other species, though in the style of flowering and colour of the blossoms it is somewhat similar to several of the better-known kinds. The flower-stem of the specimen in question is about 5 ft. high, though in a wild state it attains a much greater height.

Lilium Japonicum Colchesteri.—This scarce and handsome Lily has recently flowered in Mr. Bull's nursery. It is a fine kind in the way of *L. Browni*, but creamy white.—P. G.

The Moccasin Flower in a Small Pot.—Mr. Burbidge has recently shown us a plant of this *Cypripedium* growing in a 5-in. pot in a window. The soil in which it is placed is very moist, and surfaced with a little carpet of Penny-leaf (*Hydrocotyle vulgaris*).

Double White Ragged Robin.—This interesting old plant we noticed at Ware's the other day. It is a very uncommon one in England, and one which will doubtless be sought after by lovers of curious hardy flowers.

Lælia purpurata.—A flower of this *Lælia* sent to us by Mr. Boxall, Claybury Hall, Chigwell, shows a singular monstrosity. One of the sepals has assumed the form of a lip, as have also the two petals, while the lip proper retains the normal condition.

Double Marsh Marigolds.—There are several kinds of these in cultivation, differing from each other in a remarkable degree, both in habit and strength. We noticed them at Ware's the other day. Such plants would be very beautiful on the margin of water, or in moist ground.

Early Rivers Cherry.—Fruit of this Early Black Cherry has been sent to us from Sawbridgeworth, and very large and handsome it is. The tree, which is an abundant bearer, is a seedling from the Early Purple Gean. It received a first class certificate from the Royal Horticultural Society in 1872, and is certainly one of the best of early Cherries.

Dracænas and Eucalypti.—We have here two *Dracænas* (*australis*) about 16 ft. high, out-of-doors, and in flower. One has a magnificent spike, the other is deformed; they have survived the winter without protection. *Eucalyptus globulus*, from seed sown five years ago last April, is 32 ft. high, and although the foliage was very much browned last winter by the frost, it is breaking into growth strongly.—W. HILLS, *East Cowes Castle, Isle of Wight*.

Calochortus venustus.—As an instance of large size attained by skilful cultivation, we noted an unusually fine specimen of this beautiful *Mariposa* Lily growing in Mr. Wilson's garden at Weybridge. The stem measured 2 ft. 7 in. in height, and the blossom $5\frac{1}{2}$ in. in diameter, which is by far the finest example of this with which we have yet met. Mr. Wilson grows it in deep pots in one of his Lily houses, treatment which evidently suits its requirements.

The Vine-leaved Passion Flower (*Passiflora vitifolia*).—This is one of the most brilliant Tropical climbers with which we are acquainted, and nowhere have we seen it grown so successfully as at Mr. Parker's nursery at Tooting, where we recently saw it in full flower. Its blossoms, which are much larger than those of the commoner kinds, are of a bright vermilion hue, a colour which contrasts admirably with the deep green leaves, which are, as its specific name implies, of the shape of those of the Grape Vine.

Stigmaphyllon ciliatum.—Though an old introduction this beautiful climbing plant is one of the most satisfactory for stove culture as it never fails to flower annually in profusion for a considerable period, and moreover, it is apparently exempt from the attacks of insect pests which usually infest stove climbers. It is of a slender twining habit with heart-shaped leaves, beset with a row of hairs at the margin. The flowers are produced in loose axillary racemes, and are about $1\frac{1}{2}$ in. across; the petals are fringed at the edges, and are of a clear bright yellow colour. It is now one of the most conspicuous plants in the Palm house at Kew.

Habenaria fimbriata.—This, commonly considered to be among the curiosities of hardy plant collections, proves to be a very lovely Orchid, and when well established it is almost as handsome as *Orchis foliosa* and more striking. We have lately noticed it very well grown at Ware's.

Iris Kämpferi.—This Iris and its varieties are now flowering profusely in Mr. Barr's grounds at Tooting, where there are plants sufficient to produce from 1000 to 2000 blooms, thus furnishing an unprecedented display. One variety, of a rich claret colour, has flowers measuring 7 in. in diameter, its broad falls giving it more the appearance of a large-flowered Clematis than an Iris. English Irises are also flowering abundantly just now in the same grounds.

Singular Orchid.—We lately saw in Mr. Bull's nursery a remarkable Orchid in flower, supposed to be an *Habenaria*. The flowers are completely wrong end up, like those produced by *Odontoglossum pulchellum*. The lip is white, the sepals and petals green, and about 1 in. in length. Along with it was also in bloom the singular *Oncidium dasytyle*, the lip of which is pale primrose, and the sepals and petals are spotted with green. It is a small-growing, very uncommon looking plant, the flowers of which are extremely distinct. —P. G.

Handbook to the Flora of Germany.—Under the title of *Deutsche Excursions-Flora* Dr. Carl F. W. Jessen has published a convenient summary of the German flora, including Holland and the whole of Germany and German Austria, north of the Alps. By means of a condensed typography and an elaborate series of signs a great amount of information is comprised within small compass, including even mention of the principal hardy garden plants.

Flora of Japan.—The third part of the second volume of Franchet and Savatier's *Enumeratio Plantarum Japonicarum* has appeared, thus completing this useful work. The first part was published in 1875, and the entire work runs to 1274 pages. Few botanical books have so much interest for horticulturists as this, treating, as it does, of the exceedingly rich vegetation of a country enjoying a climate similar to that of our own. Numerous as are the ornamental and useful plants we have in cultivation for which we are indebted to Japan, the vegetable riches of that region are by no means exhausted. —*Gardeners' Chronicle*.

Park for Wolverhampton.—Twenty-seven competitors responded to the invitation of the Wolverhampton Town Council to send in designs for laying out as a public park 47 acres of land near the town. The first premium (£50) has been awarded to Mr. R. H. Vertegans, Chad Valley Nurseries, Edgbaston, Birmingham; Messrs. Barron & Son, Elvaston, near Derby, gained the second premium of £25. Mr. Vertegans has been engaged to lay out the park and plant the same in accordance with his design for the sum of £5000. The accepted design provides for spaces to be devoted to cricket, archery, croquet, and other outdoor games, a drill ground for volunteers, and a lake covering a space of about 9 acres. Some twenty thousand trees and shrubs are to be used in planting; and arrangements will be made for shelter, refreshment rooms, &c. Outside the fence of the park, and encircling it, there will be a spacious drive for carriages, &c.

Tuberous Begonias.—Few plants have become so popular of late years as these, and many fine-named varieties have been produced; but the great demand for them, and the somewhat slow way in which they are increased, tend to keep up their price. For ordinary decorative purposes very beautiful flowers can be had from seed, provided this is obtained from a really good strain: anyone questioning this would have his doubts dispelled by the sight of a large house at Messrs. Veitch's. Of this house one-half is filled principally with plants from seed such as anyone may obtain, and as we have said, for ordinary display these are all that need be desired; in colour they vary from pale creamy white through every shade of pink and salmon up to scarlet, red, and deep crimson. Their easy culture and long continued habit of blooming, and last, not least, all but immunity from insects, make them deserving of cultivation by everyone who possesses a greenhouse, pit, or even a large garden frame, as well as out-of-doors in moderately sheltered spots where they will not be much exposed to the wind. —P. G.

The Best Double White Fuchsia.—It would not be prudent for a cultivator to limit his selection of Fuchsias to two or three varieties, but some of the Fuchsias are so far superior to the others, as regards decorative purposes, that it is desirable to direct attention to them for the information of those who may not be desirous of growing a large number of plants, but a few of the best. Of the double varieties with white corollas, of which I have grown all that have been introduced of late years, the best is unquestionably Miss Lucy Finnis, which was sent out by Mr. Cannell a few years ago. The flowers are very large, the brilliant red sepals nicely re-

flexed, and the corolla, which is very large, consists of broad, flat petals, well arranged. Its greatest value, however, consists in the splendid habit and the profusion with which the flowers are produced; and in manner of growth and freedom of flowering it has but few equals and no superior. No better proof of its utility could well be had than the fact of its being grown largely for Covent Garden Market. —*Gardener's Magazine*.

PLATE CLXXXIX.

A GROUP OF HELLEBORES.

Drawn by CONSTANCE PIERREPONT.

HELLEBORES rank amongst the most ornamental of winter-flowering hardy plants, but, although, as will be seen by a glance at the accompanying plate, they possess considerable variety and diversity of colour, it is a singular fact that one seldom meets with any of them in gardens, except the ordinary Christmas Rose (*Helleborus niger*), though they are all equally amenable to culture; indeed, there is not a garden in which they will not thrive, provided they are planted in light rich soil and in a partially shaded situation. In Vol. XIV. (p. 178) of THE GARDEN, we gave a coloured illustration of the Giant Christmas Rose (*H. altifolius*), accompanied by a complete list and short descriptions of the species in cultivation. We, however, alluded but briefly to the many beautiful varieties that have been raised both in Continental and English gardens through skilful hybridisation and selection of seedlings. The principal named varieties belong to the group with purple flowers and thick, leathery, evergreen leaves. For the varieties figured we are indebted to Messrs. Barr & Sugden. These comprise—

Helleborus orientalis Dr. Moore.—A fine variety raised by the late Dr. Moore, of Glasnevin. It is an abundant bloomer of vigorous habit with greenish stems spotted with purple. The flowers are larger than those of the type, of a lively rose tint, with the edges and inner face of the sepals of a lighter hue.

H. orientalis rubidus.—The flowers of this variety are of a medium size, of a reddish-plum colour on the outside and paler within.

H. orientalis rubellus.—Another distinct kind, having flowers of a similar size to those of the preceding, but of a lighter shade produced by the glaucous bloom.

H. abchisacus ruber.—This is a darker-flowered form than the original, but in other characters it is similar.

H. rubro-purpureus.—A distinct and handsome variety in the way of *H. atro-rubens*, but with flowers of a much deeper shade.

H. guttatus Leichtlini.—A pretty variety characterised by copious spots on the inside of the flowers, and the latter considerably larger than those of the type.

H. fulvus.—This is a handsome seedling form of *H. atro-rubens*, of robust habit, but with larger blossoms. The latter are reddish-purple suffused with pale brown.

H. atro-roseus.—This is another seedling from *H. atro-rubens*, to which it bears considerable resemblance, though the flowers are paler in colour.

H. colchicus punctatus.—A very handsome variety, and one which is depicted in our plate. It is similar to *H. colchicus*, from which it differs by being copiously spotted with deep purple.

The varieties that have emanated from the continental gardens are

H. orientalis Commerzienrath Benary.—A pretty variety, similar to *H. guttatus*, and profusely spotted with deep purple spots on a greenish white ground.

H. orientalis Frau Irene Heinemann.—The blossoms of this form are paler in colour than those of the typical kind, but may be distinguished by the purple spots on their inner surface.

H. orientalis Hofgarten Inspector Hartwig.—Another variety of the *orientalis* group, but with less showy flowers, being of a dull purple hue.

H. orientalis F. C. Heinemann.—A form similar to the foregoing with the same dull purplish tint, but mottled.

Ioichroma Warscewiczii.—A rare but free-growing Mexican plant, having viscid, dark green, oblong leaves and gracefully drooping axillary clusters of tubular flowers, which are of a deep blue colour and very effective. Its dense foliage and distinct appearance are in its favour as a pillar plant for a moderately warm and airy conservatory, and in such a one we have just seen it blooming well. —F. W. B.





GARDENING FOR THE WEEK.

Flower Garden.

The weather is so constantly cold and wet that flower gardens generally are in a deplorable state, and worthy of that designation in name only, flowers being wanting, whilst those plants that are used on account of the colours of their foliage only, such as *Coleus* and *Alternantheras*, refuse to make the slightest progress in growth; it therefore at present seems as if flower gardening will be a complete failure this season. Nevertheless, a week's sunshine would work a marvellous change. The hardier plants, such as *Pyrethrum Golden Feather*, variegated *Mesembryanthemum*, and *Mentha Pulegium*, have grown somewhat patchy, and should be cut or pinched back to the desired form. *Verbenas*, *Petunias*, *Heliotropes*, and *Ageratums* are growing straggly, and require pegging, in order to preserve uniformity of height and truthfulness of design. Herbaceous borders present a somewhat weedy appearance, many plants, such as *Phloxes*, *Pyrethrums*, and *Asters*, consequent upon the excessive wet and sunless weather, having made abnormally tall growths. All these require staking, and the borders generally must be weeded and hoed when the weather permits. *Stake Sweet Peas*, top back a few inches the earliest flowered ones, in order to induce a second bloom, and clip over, with the same intent, annual flowers that have produced a first bloom. *Virginian Stocks*, *Schizanthuses*, *Nemophilas*, and *Eschscholtzias* are all of them amenable to such manipulation. In order to keep lawns in anything like trim condition double the usual labour is necessary this year, but as mowing cannot be postponed without injury to the finer Grasses, and as neatness makes amends for many other shortcomings, such labour need not be begrudged. Cutting Box, clipping hedges, pruning evergreens, and budding *Roses* may all now be done as time and opportunity offer. —W. W.

Auriculas.—We have this season reserved a considerable number of specimen plants from which to save seeds, but the harvest does not promise well except where the flowers were crossed with other varieties. I recently commented upon the best varieties to select as seed and pollen bearers respectively; there are many kinds that can scarcely be prevailed upon to produce a single seed, i.e., if the flowers are only fertilised with their own pollen, but which will produce plenty if foreign pollen is employed. The seedlings from last year's seeds are growing very freely, and by taking care that the plants receive no check, we shall obtain several hundreds of good flowering plants for next season. 3-in. pots will be sufficiently large for the largest plants. We shall grow a goodly number of *Alpines* out of doors next season, and shall also try some of the others; they all will stand the winter, and flower quite as strong as plants in pots; the only drawback is the injury which the plants receive from rains, which spoil the beautiful foliage dusted with farina. The white and grey edged classes are the least suitable for out-door culture. Now is a good time to plant them out. The beds should be in a dry position, but not exposed to the sun, and the plants dislike stagnant water, especially in winter. I generally place about two or three inches of good loam on the surface of the beds before planting out; each plant ought to be divided into single crowns, and they should be planted 9-in. apart, pressing the soil rather firmly about the stem.

Carnations and Picotees.—Some remarks were made last week about the value of the *Carnation* and *Picotee* as a town flower, and also respecting the small expense that would be incurred in furnishing beds with them; and an instance occurs to me where I saw a very large space of ground devoted to seedlings. They were planted near one of our largest manufacturing towns, and in a position where the atmosphere was charged with smoke and deleterious substances of a worse character; nevertheless there they were in the shape of thousands of plants, nearly all of which have produced handfuls of beautifully marked flowers, and the seeds from which they were raised were such as can be purchased in any seed shop. The beds contained about equal quantities of double, semi-double, and single flowers, but a single *Carnation* is by some considered more beautiful than one too double, the last being merely a mass of small petals, which cannot be restrained from splitting the calyx. Show varieties will now require considerable attention; some of the very best have a tendency to show split calyces, but this must be prevented by slitting the calyx down a little on the opposite side, and tying it round with a strip of bast. When the flowers open they must be protected from sun and rain; the best plan is to remove them to a position under glass.

Hollyhocks.—These are growing strongly this year; the main stem must be made secure to its support, for if not made rather firm, it oscillates when acted on by the wind, and the flowers get spoiled in the bud. Still continue to put in cuttings as previously recommended. Administering manure water is of little use, but the plants

can be much strengthened in a rainy season like the present by placing some manure round the roots. There seems some hope that the fungus, which has probably utterly eliminated many fine *Hollyhocks*, is at length disappearing, either from the effects of climatic influences, or because there are few plants left for it to destroy.

Gladioli.—These fine autumn-blooming plants are difficult subjects with which to deal. At one time we grew several thousands of them annually, but ultimately losses among them were so grievous that they have been almost given up. We have a few this year, but they make but little growth, and do not as yet show their flower spikes. Our wet autumns have been very much against them; they have almost invariably to be lifted while their leaves are quite green. It is much better to save seeds from carefully crossed flowers than to purchase bulbs annually; the latter are expensive, and the losses heavy, whilst from a few pods of seeds hundreds of fine showy varieties can be raised. The same cultural directions as those given a fortnight ago are still applicable. The system of leaving the bulbs in the ground all the winter I have not tried, but cannot think it would answer well unless some protection could be contrived to throw the wet off them, otherwise delicate sorts would be sure to die off.

Phloxes in Pots.—Like every other class of plants these are late this year, but they are sufficiently strong, and will gladden us with their beauty and perfume in September instead of August. The plants should be supported by means of stoutish sticks, and it may be necessary to plunge the pots in Cocoa-nut fibre refuse, or some similar material, to prevent their being overthrown by the wind. They must be attended to with regard to watering, and they will be benefited by liberal supplies of manure water up to the time when the flowers open. All such subjects out-of-doors require the same attention. The best time at which to propagate *Phloxes* is early in spring, but there are side-growths to be obtained now, which may be inserted either in a shady border or in small pots.

Pentstemons.—These are just coming into bloom, and the growing shoots must be carefully fastened to sticks. *Pentstemons* have a good effect in mixed borders and also in beds. Cuttings of them may be put in now if the object be to attain a large stock of plants, but the best time is September or early in October.

Delphiniums.—These are now in full beauty, and well repay the cultivator for any care which he may have taken with them. Nothing now is required except to see that the flowers are not injured by the wind. —J. DOUGLAS.

Conservatory.

There are many stove plants which, when treated through the spring and summer so as to induce robust growth, will bear placing for some weeks during the warmest part of the season in ordinary conservatories; this is especially the case with *Ixoras*, *Clerodendrons*, and *Bougainvilleas*, but where these plants are subjected to too much shade and moisture and grown in dark houses, or too far away from the glass, they will not bear to be so employed, and, consequently, much of the usefulness of which they are capable is lost. But before submitting them to the lower temperature which they necessarily receive in a conservatory, the house in which they are grown should be given more air than usual for a fortnight or so previously, and before taking them out into their cooler quarters they should be allowed to get as dry at the roots as they will bear without the flowers flagging, and the structure into which they are moved must also be kept a little closer for a few days after their admission, and during the time such plants are allowed to remain in it the air given should be so admitted as not to come in direct contact with them. The latter portion of the present month up to a similar time in August is the period when these plants will not only bear keeping cooler but when they are most useful. It will be understood that these and other stove plants of a similar character can only be used as indicated when we get seasonably warm weather, and should there be a continuance of the low temperature that has so far marked the present summer, it would be a mistake to so subject them. Many handsome-leaved stove plants such as *Dracenas*, *Aralias*, *Oreopanax*, *Cupanias*, *Caladiums*, and fine-leaved *Begonias*, can also be employed for conservatory decoration; and owing to the distinct character of the colouring of their foliage, they will in some measure compensate for the paucity of flowers at this season. Where *Tree Ferns* are grown in the way which I have from time to time recommended, viz., in a drier atmosphere with more air and a lower temperature than that to which they are usually submitted—in fact, treated as ordinary greenhouse plants, with an absence of the daily stem syringing often resorted to to induce the production of stem roots, which are perfectly useless so far as the health and strength of the plants are concerned—the advantage of this management will now be obvious owing to the much stouter and harder condition of the fronds, enabling them to be used in conservatories, greenhouses, corridors, or, for a few days at a time, in entrance halls provided no gas is employed, without

any injury whatever. Another important matter in connection with the cultivation of these Tree Ferns which it is necessary to frequently point out, is the error fallen into of growing them in large pots or tubs, than which no greater mistake can be committed; when their roots are very much more confined than those of the generality of other plants, by the use of manure water during the growing season they will produce heads sufficiently large for all purposes. Another advantage is that they are much easier to move about, look far better, and can be used in many places in which large unwieldy pots and tubs would make their presence objectionable or impossible. A good syringing overhead two or three times a week, getting well to both the upper and under parts of the leaves, with a view to keep down thrips and to clean the upper surface from dust, will be of benefit to them.

Greenhouse.

Hard-wooded Plants.—In peculiar seasons like this, the necessity for adapting the treatment given to plants in accordance with their altered conditions is obvious. All the more generally useful hard-wooded subjects, such as *Acacias*, *Cytisuses*, *Epacris*, *Polygalas*, *Boronias*, *Chorozemas*, *Correas*, *Clianthuses*, and others, whether of the more ordinarily serviceable small decorative size or larger, have been this spring quite a month later in flowering than usual, a circumstance which has made their growth proportionately later, and unless steps are immediately taken to make up for their backward condition, either the amount of growth made capable of flowering next year, or its insufficient ripening will to a certainty very much diminish the blooming capabilities of the plants during the following season. An opinion often prevalent is that plenty of air during the summer season and fair treatment other ways are all that plants of this description require, but it is well not to lose sight of the fact that all such plants come from countries possessing a higher temperature than that of ours, and also longer summers, and in order to induce the full complement of growth being made, I should recommend that for the next three weeks the plants be kept a little closer than usual by closing the houses and pits earlier in which they are grown, elevating the plants so as to secure every available ray of light, which will compensate for a diminished admission of air. Treatment of this kind will enable the plants to produce the requisite amount of wood, after which they can be placed out-of-doors from the middle of August to the second or third week in September, time quite sufficient to effect maturation, a process which in the open air does not take near so long in the case of the majority of plants as is frequently supposed. So far as late-flowering *Epacris* are concerned, after blooming they will bear keeping in a close atmosphere and syringing overhead in the afternoons, just in the way in which *Azaleas* like to be treated; a very short time out-of-doors will suffice to ensure their blooming.

Azaleas.—These, excepting those forced earliest, are, through the absence of solar heat, more than usually late; they should, therefore, be kept a little warmer than ordinary, shutting up by two or three o'clock in the afternoon in the southern parts of the kingdom. This will secure sufficient growth, even in the case of the latest-flowered plants. In the northern districts a little fire-heat will be necessary. The half starvation system, of growing *Azaleas* by turning them out-of-doors in the summer season before their growth is nearly completed, no doubt admits of their blooming to a certain extent, but such treatment invariably induces small indifferent flowers and puny growth, whereby, especially when cut, the wood that can be taken off attached to the flowers is so small as to much diminish their usefulness, and they always get into a more or less hard stunted condition. This, as a matter of course, does not apply to plants managed in such a way as to have them in bloom through the winter or early spring, and which consequently make growth proportionately early; but even in their case they are much better kept entirely under glass.

Camellias.—Such of these as flowered early will require to be treated in accordance with the time when they are again wanted in bloom; there is no difficulty in gaining a month or six weeks each year in the earlier opening of the flowers where this is deemed necessary, until, if desired, the earliest will begin to open by the middle or end of July. In most cases, however, their flowering so early would be rather a disadvantage than a gain; but where the earliest have not bloomed until, say the first month in the year, they may be had six weeks sooner than this in the coming autumn by simply letting them remain in warmth sufficiently long after the buds are set. This treatment keeps them on growing to an extent that admits of their full development much earlier than would otherwise be the case, an effect that heat in the way of forcing will not have upon them when they have once been induced to a comparative state of rest after the buds are formed by placing them in a perfectly cool house, or in the open air. The latter treatment I should by no means recommend, except as a matter of necessity, where there are no means of accommodating them in a house where they will be but

little under the influence of the sun, or under a temporary covering of loose lights, or a canvas blind that can be put on or off when sun or wet requires it. *Camellias* out-of-doors when the plants are strong and healthy, and comparatively large for the pots or tubs which the roots occupy, need to be very carefully treated during the next two months; care must be taken to see that they do not want for water, a condition from which they are much more likely to suffer than in cases in which there is more proportionate root-space.

Heaths.—All, except the latest spring-flowering sorts, should by this time have made sufficient growth to enable them to be set out-of-doors, but with the hardest-wooded kinds care should be taken not to fully expose them to the sun for the first few days, or their leaves often become so browned as to be permanently injured. The dark bronzy-green tint which these plants get from open-air exposure, is, when present to a moderate extent, indicative of health, but not when carried too far, as is evident by the foliage when it assumes this colour sometimes dying off prematurely. A matter of great importance with these, and all other hard-wooded plants set out of doors, is to protect the pots on the side exposed to the sun, as a single bright day will frequently have the effect of reducing the roots, which in healthy specimens usually lie closely packed against the insides of the pots, to a condition which for a time stops their further extension. Young plants placed close together to some extent shield each other, and, moreover, the soil contained in their pots is not usually so full of roots as in the case of larger examples, consequently they are less likely to suffer in this way.

Greenhouse Campanulas.—The white and blue pyramidal varieties of these, usually treated as biennials, need special attention, as they in common with most other plants are this year late and small; nothing must, therefore, be left undone to encourage them to acquire size and strength before autumn, for on this depends the display which they will make next summer. Where the seeds were sown somewhat late, many may not get strong enough to flower at all next year, but, fairly treated, they will make fine blooming plants the year following—erect columns of flowers 10 ft. or 11 ft. in height, if kept to a single stem and grown in pots sufficiently large. The old drooping *C. fragilis*, now seldom met with, is one of the most beautiful long-blooming plants which we have for standing on brackets, the edges of shelves, or in similar positions, where its profusely-flowered pendent shoots can be seen to the best advantage, and its colour, pale blue, from its comparative scarcity in greenhouse subjects, makes it still further desirable. It strikes freely from cuttings put in any time during the spring and summer in ordinary soil; small pots 7 in. or 8 in. in diameter are sufficient for even large specimens. The plants will last for a number of years. In addition to their usefulness for greenhouse decoration, they are amongst the best plants that can be used for rooms or windows.

Lilies in Pots.—These will now require attention; the necessary supports, consisting of a single stick to each stem, should at once be put to them. Where there are several bulbs in a pot it is necessary to be careful as to how the sticks are inserted, otherwise the bulbs will get injured. Where the plants are strong, and the pots comparatively small for the number of bulbs which they contain, the roots will by this time have permeated every particle of the material, and even although it contains plenty of manure, it quickly becomes impoverished so as to insufficiently support the plants. This is particularly the case where these beautiful subjects have been treated as they ought to be in one of their most important requirements, and that is not to overpot them. It is questionable if liquid stimulants are of much use in the early stages of the season's growth; but when the plants have attained the condition above indicated, liquid manure is of the greatest possible benefit in enabling them to retain their lower leaves in a green healthy state until the flowering is over, which not only is of importance so far as appearance goes, but is equally worth consideration on account of its imparting strength to the bulbs for the time to come, for I have invariably noticed that the bulbs of *Lilies* which retain their leaves in the healthiest state the longest, increase the most in size, and produce a proportionately greater amount of flower. This particularly applies to the varieties of *L. speciosum*. Another matter is to keep them scrupulously clear from insects, as there are few plants that sooner suffer from neglect in this matter. *L. eximium*, the earliest bloomed plants of *L. auratum*, and others that have done flowering, so far as their future well-being is concerned, require to be just as well treated in the matter of attention as to water, so long as their leaves keep green, as they did previous to blooming.

T. BAINES.

Hardy Fruit.

The crisis as regards fruit prospects has now been reached, and it is with regret that I have to express my conviction that 1879 will have to be recorded as a year of scarcity, notwithstanding the bright prospects which existed a few weeks ago. Still it rains; and Straw-

berries, though full crops, must suffer; indeed, they have already suffered, many having rotted off in a young state. They have to be netted from birds, which are just as troublesome as in a season of drought; shooting one occasionally frightens many away for some time, particularly if the dead bird be exposed as a scarecrow. Red and Black Currants and Cherries are also ripening, and require protection with netting, or, what is better, gathering them. Any that are to be netted up for dessert purposes in the autumn will require more than the usual amount of attention in order to prevent mildew and decay, which, owing to the excessive moisture both in the ground and in the atmosphere, are sure to be prevalent. As a safeguard the netting should be removed for an hour or two whenever the weather is fine and the winds drying, and provision should be made for this by so fixing it at first that it may be expeditiously removed and replaced as desired. Apples, Pears, and Plums are making most luxuriant but by no means fruitful growth, and repression, by cutting back all the most watery and strongest shoots, must still receive attention; but remove a portion only at one operation, so as to avoid giving a severe check to the trees, and allow an interval of a week ere another portion is removed. A good rule is to take all the strongest shoots first, as these are sure to require a second stopping, whilst for the weaker growers once will suffice. I fear there is not much occasion to recommend thinning the fruit, though if any are so fortunate as to need to do this, it ought to be done forthwith. We have had to thin all trees on walls and a few standards. The following kinds of Pears are fruiting well, viz., Beurré de Capiaumont, Passe Colmar, Marie Louise, Jargonelle, Easter Beurré, Seckle, Winter Nelis, Glou Moreau, Pitmaston Duchess, William's Bon Chrétien, Beurré Hardy, and Thompson's. Peaches and Nectarines that have been badly affected with blight or blister, if now clean—as they will be if remedial measures have been applied—will be making fresh growth, which ought to be left intact till there is danger of overloading, when the removal of surplus shoots may take place, and the permanent ones be tied or nailed in, in order to forward maturation, for the season is so advanced, that even with the brightest weather from the present time, they will require all the assistance that can be given them in order to attain this object. The final thinning of the fruit should now be done; ours—a full crop—were thinned three weeks ago; for obviously there must be less danger of the fruit failing to pass the critical ordeal of stoning when thinned early. Early Apricots are in their last swelling stage preparatory to ripening; the fruit should therefore have full exposure to any little sunshine there may be, for even in the best of weather it is difficult to get Apricots to ripen throughout, the side next the wall being often hard and green whilst the front is dead ripe. Spur in the shoots to within a couple or three leaves of the old wood, and tie in all new shoots required to furnish the wall or that are required to take the place of old spurs at the winter pruning; for the present these may be tied over the old spurs, the shoots produced by the latter being kept rubbed off. The leaf-rolling caterpillar has made its appearance; hand-picking is the only effectual mode of getting rid of it, and if this is resorted to as soon as the pest is first perceived it will not be troublesome.

W. W.

Parks and Open Spaces.

Gravel and Tar-paved Walks.—Walks, whether formed of gravel or tar-paving, require some attention at this period of the year, as it is extremely uncomfortable to walk upon loose gravel or upon tar-paving which, as is too often the case, has large stones showing through the surface. To remedy this evil in the case of gravel walks, especially those which are formed of gravel of good binding quality, in addition to constant rolling in showery weather, the surface should be occasionally strewn over with sea sand or finely broken cockle shells. If this is done once a week during the summer months, it will be found to be an immense improvement and greatly assist in keeping down weeds. The cost is very trifling, as if done as often as suggested only a light sprinkling will be necessary. During very dry weather, and when the wind is high, the walks should be lightly watered to prevent dust and the fine materials placed on the surface from being blown away.

In the case of tar-paved walks the method of procedure should be totally different; there should never be any loose materials put upon the surface. It is quite a mistake to sprinkle sand or shells upon such walks, for the following reasons: it always lies loose; watering is destructive to the paving; in case of showers the walks do not dry so quickly as when perfectly clean; and the materials are easily blown upon the adjacent Grass or along the edges of the walks, to be carried into gullies and drains during the first heavy shower. The best method in my opinion to deal with walks of this description, when they have become deteriorated from the effects of wear or other causes, is to paint them over with gas tar and cover the whole surface over thickly with very fine sea-shells or sand composed of fine sharp grit; the two may be mixed in equal proportions also if preferred. When this has become thoroughly set the walks

should be kept perfectly clean. This work is inexpensive, and really makes an excellent surface upon which to walk. I am very much surprised that tar-paved walks are not more generally made than they are, and that those who adopt them should be so careless respecting their maintenance. It must be borne in mind that there is no kind of paving which does not require some expenditure to keep it in good order, and a great saving is effected by so doing. In this respect I maintain that well-made tar-paved walks are far in advance of those made of gravel, i.e., the cost of maintenance is considerably less, no rolling being required and no weeding. How often these walks should be painted over very much depends upon the materials of which they are composed. I may, however, with safety say once in three years. They should never be made in damp places nor under the shade of trees and shrubs, and in every case the drainage must be rapid and perfect. Although some years have elapsed since the introduction of this paving, there seems still to be a want of knowledge or care in its manufacture, resulting frequently in failure. Thus, in some instances, too much tar has been used, rendering it soft in hot weather; in others, not sufficient to ensure a well-bound surface. Sometimes the tar is of bad quality, the stones not thoroughly free from dirt, improperly burnt, or the mixing indifferently done; these are evils easily avoidable. In hot weather, upon the slightest appearance of tar on the surface, it should be covered with fine materials as recommended after painting. In cases where, from an insufficiency of tar, the paving crumbles, it should be dressed over without delay. Where expense is no object, asphalt would make the most durable walks, the cost of maintenance being reduced to a minimum. Wood paving might also be used with advantage in many positions; this is fairly durable, and both are noiseless.

Fences.—Good fences are of great importance in public parks and open spaces; they should not, therefore, at this period of the year be neglected. Fences, whether of iron or wood, may, with great advantage from a preservative point of view, be painted, tarred, or varnished, Stockholm tar being preferable to gas tar for wood fences, tree guards, &c.; it is, however, much more expensive. Generally speaking, tar should only be used in quite out-of-the-way places; in the more conspicuous positions paint or varnish must be the materials employed, the most suitable colours being maroon, chocolate, and green, the two first for fences and gates, the latter for trellises and such like structures. Iron fences may very properly have a coat of black varnish, a most excellent and inexpensive material easily applied by an ordinary workman. This is particularly adapted for the standards of wire fencing, continuous rod and bar fencing, iron hurdles, &c. Galvanised fencing is not generally supposed to become oxydised, but in London, whether from the chemical influence of the atmosphere or other causes, it does become injured after a few years, more particularly on that side which is most under the influence of the sun's rays; therefore it is advisable to give it a coat of varnish after a few years' wear. This work not only preserves those materials to which paint, &c., is applied, but also adds its quota to the appearance of a well-managed park or open space.

General Work.—Branches of evergreens may now be pruned outsoast to give a natural and easy outline to shrubberies. Edgings of Ivy, Euonymus, Box, &c., which have made young growth freely should be carefully looked over with a view to filling up any bare places, taking out unsightly leaves and useless shoots. Box may be clipped in the ordinary way. Hedges which are usually maintained in a symmetrical condition, as Privet, Holly, Laurel, Thuja, Quick, &c., must now have their summer clipping, filling up gaps with branches by laying them across the openings. The only necessary attention to give to trees in streets, avenues, or plantations, is to ensure their being secured from danger in case we should experience boisterous weather. Lawns must be frequently mown and swept, using the roller assiduously in damp weather. Daisies, Dandelions, and other objectionable weeds in Grass must be eradicated on every favourable opportunity, taking care to do the least possible injury to the turf. I have found a slight sprinkling of salt beneficial to Grass at this season; it should be applied in wet weather. Those who grow common spring flowers as Daisies, Pansies, Arabis, Aubrietias, Forget-me-nots, &c., may now sow seeds in cold frames, pricking them out when ready; they will thus make good strong plants by the time the bedding plants have played their part. The above may also be propagated by means of cuttings or root division; indeed, seeds of most perennials may now be sown in nursery beds, and a few annuals in borders for late flowering. A mulching of well rotted manure given to beds of Asters, Stocks, Zinnias, Helichrysus, &c., will materially assist in developing their flowers and deepening their colour. Lakes in which the water is stagnant are often covered with *confervæ*, &c., at this period of the year, which should be removed by means of mowing, raking, &c. As this objectionable vegetation, however, generally arises from germs deposited in the mud at the bottom of the lake, it is often ad-

visible to thoroughly clean out those which are in a very bad state. Lakes should if possible always be formed in those positions best calculated to ensure an abundant supply of fresh water, either from running streams or springs. [C. DENNIS.]

ROSES.

Striking Cuttings and Budding.—Both stocks and buds are this season very backward, and in the north of the kingdom the middle of the month will have been reached before there is a chance of doing much budding; no time should therefore be lost now as regards this matter. But except in the case of scarce new varieties which can be increased faster in this way than by propagating them on their own roots, in private places, for which these remarks are intended, Roses are very much better on their own roots, and if cuttings are put in in sufficient quantities at the different seasons of the year, when they will strike, the stock of Roses, if wanted in abundance, may in a few years be all had in this way. The great numbers of fine Roses that now exist, of all shades and colours, with vigorous strong constitutions, are such as to make cultivating weakly flowers a mistake, however beautiful the individual flowers may be. It is easy to understand that those who grow Roses for exhibition should cultivate some of the weak-constitutioned sorts, which, when grown in quantities of each variety, often furnish a few extra fine blooms; but no greater error can be committed by those who grow Roses for ordinary purposes than cultivating such weakly flowers at all. One of the most successful methods of striking Roses that I have ever found is when the first flowers of the season are over, and when the shoots which have borne them have pushed the second growth, to take them off when they have reached a half-ripened condition and insert half-a-dozen cuttings together in 5-in. or 6-in. pots in sandy soil. Place them in a cold frame quite moist; shade and keep the frame so close that the air given will not cause them to flag, and in three weeks' time the base of the cuttings will be callused over, when, if the pots are then plunged in a slight hotbed and treated like other cuttings, they will root directly and make useful little plants before the autumn, whereas if put in heat before they are callused over, three-fourths of them will damp off.

Mildew on Roses.—The plentiful supply of moisture we have had through the summer has in a great measure prevented the prevalence of mildew, which often makes its appearance in private gardens, and is generally much more troublesome there than in the more open spaces in which Roses are grown in nurseries. Apart from the unsightly appearance which plants so affected have, it does them much harm, and completely spoils the autumn bloom which ought to be forthcoming. Therefore, as soon as ever the parasite is seen, means should at once be taken to destroy it; sulphur in some form, either dusted on the leaves, or in water, will be found the best remedy.

Pot Roses.—Plants intended for producing the first flowers under glass after the latest Tea varieties are over-out-of-doors, should be well attended to, removing all the buds that are formed as they appear. Keep the foliage clear from red spider, aphides, and mildew; syringing overhead with weak Gishurst compound will be an effectual remedy for each of the above pests. The greater portion of the stock grown in pots used for forcing will with most growers be now out-of-doors for a rest, and it is here, and at this time of the year, when they often suffer, especially from the attacks of mildew, to which the leaves that have been formed under glass are exceptionally liable. It spreads most rapidly, and the only way in which it can be coped with is to apply the sulphur remedy immediately a trace of it is discovered, for if the plants get much affected they will be so far weakened as to be unable to push strong flowering growth when placed in heat. Should any of the young advancing plants need more root-room, larger pots should be given them without delay so that the soil may get filled with roots before winter sets in. Roses planted out in houses also need constant attention as regards giving them manure water when necessary to stimulate stout growth, and regularly using the garden engine or syringe to keep them clear from insects. T. BAINES.

Roses at Stapleford.—Mr. Bennett's Roses are very interesting, and look as if they would prove very valuable, but few good blooms were open when I saw them. He has carefully fertilised many of them with pollen from other good sorts, and has kept the names of both parents, and the characteristics of both are often seen in the offspring. Most of the female parents are Tea Roses, as they seed more freely. President is the dam of many of his best seedlings. He has propagated only nine to send out, but among the

stock we saw four or five others very distinct and apparently remarkably strong. His Hybrids have in many cases the glossy foliage and glaucous stems of Tea Roses, with the sturdy growth of Hybrid Perpetuals; some, on the other hand, have the slender habit of Teas with strong coloured flowers. They seem to be wonderful bloomers, never sending up a shoot without a bud on the top. His little plants of Duke of Connaught, a fine crimson, which he is going to send out, are in 2½-in. pots, and all crowded together in a house, but they all keep their leaves, and many of them have two blooms, each nearly as large as the pot. Our own Roses are just coming out, and are very good in colour; but there are very few other flowers. Those who are depending on Pelargoniums for flowers will be taken in this year.—A. P.

Roses at the Ascot Nurseries.—The increased demand for Roses on their own roots, especially the Tea and Noisette varieties, is everywhere apparent, but in none so much so as in the establishments where these are grown largely for sale. We recently saw a couple of houses at the Ascot Nurseries filled with 4000 plants of Maréchal Niel and Gloire de Dijon grafted at the commencement of the year; they were in 6-in. pots, with from two to four shoots each about 3 ft. high, and were just about to be moved into 8-in. ones, and potted down so as to get the point of union between plant and graft below the soil, which will at once induce the formation of roots above the juncture, when virtually they will be on their own roots. All the leading Tea varieties are here treated similarly.—P. G.

Rose Houses.—Houses built specially for the culture of climbing Roses will soon become common in all moderate-sized gardens. They specially commend themselves to amateurs, inasmuch as when once the house is erected and planted little else is required. Heating is not a necessity, and may be employed or not as may be found desirable. Low span-roofed houses, with roofs coming down to within 12 in. of the ground, and with plenty of ventilation on either side, and a sunk path in the middle of the house, answer well. The plants may in some cases be planted outside and some inside, and the sorts should be chiefly Teas of several colours, specially those that produce pretty button-hole flowers. They should be trained up wires just as Vines are. I shall this spring and summer cut, out of a span house not yet half covered, about fifty dozen of Roses, chiefly in a half-expanded condition.—A. D.

Rabbit-proof Plants.—"Salmoniceps" (p. 452) is mistaken in supposing that Lilies enjoy any immunity from the attacks of rabbits. Three or four weeks ago I put out some plants of *Lilium auratum* from 1 ft. to 2 ft. high on a newly turned-up piece of meadow land, and, to my annoyance, they were immediately attacked by rabbits, and all but five or six eaten nearly down to the ground. The plants that were left owed their escape to their being from 1½ ft. to 2 ft. high; but, at the time I write, these have been reduced to two, and they are all that remain of about twenty-five plants which I planted out. I sowed seeds of the Canary Flower (*Tropeolum peregrinum*), which I intended to grow for seed, and these have also been attacked by these pests. I am quite at a loss for a remedy. Can any of your readers suggest one?—J. M.

Market Garden Farms.—The following are the prize winners in the "Market Garden Farm" competition, held in connection with the International Agricultural Exhibition at Kilburn. Section II. Class 3.—Market Garden, exceeding 10 and not exceeding 50 acres. Mr. William John Gay, Barking, first prize; Mr. William Gay, Corbetscye, Romford, second prize. Section II. Class 4.—Market Gardens above 50 acres. Mr. John Lancaster, Vine House, Canning Town, first prize; Mr. Thomas Patch, Barking, second prize. Section III. Class 5.—"Market Garden Farms," within 50 miles from the Mansion House.—Mr. H. Swan, manager to trustees of late J. Circuit, Rainham, first prize; Mr. William Walter Glenny, Cecil House, Barking, second prize.

Central Fruit and Vegetable Market.—The Corporation of London, at their last meeting, approved the City Architect's plans for the erection of the London Central Fruit and Vegetable Market, on land adjoining the Central Meat and Poultry Markets at Smithfield, at an estimated cost of £115,000. The market will have a frontage on four streets or roads, viz., Charterhouse Street, Western Roadway, New Southern Roadway, and Farringdon Road. There will be three principal entrances, on the east, north, and south. The plans show an area of nearly 44,000 ft. devoted to wholesale market purposes, surrounded by forty-one shops, fronting the several streets, which can be used for retail and other purposes, and these occupy an area of some 16,800 ft. The general appearance of the building externally will be as similar in character to the other markets as the less expensive nature of the works will allow. The cost of the superstructure is estimated at £115,000, but the land and approaches will cost in addition £175,937.

THE INDOOR GARDEN.

PORTUGUESE CALADIUMS.

It may be asked why these plants are called Portuguese Caladiums, seeing that the type, of which they are the varieties, is a native of Para; it is, however, fully justified by the fact of these varieties having first been produced in Portugal, a country which possesses an exceptionally favourable climate for the purpose. M. Bleu, a well-known amateur horticulturist, has succeeded in bringing the eminently ornamental plants forming this group to the highest state of perfection, the specimens shown by him at the various French horticultural exhibitions always attracting crowds of admirers. Besides their graceful form, the nature and texture of the leaves and the exquisite harmony of their colours are objects of admiration to everybody. To describe these plants with justice would require the use of a whole regiment of superlatives. There is, however, one reproach to be made against M. Bleu's pets. In spite of all their other perfections, it must be allowed that their general habit is somewhat uniform, and, according to a well-known French proverb, "weariness is the child of sameness." In nearly all the numerous



Portuguese Caladium.

varieties which he has grown there is a great similarity of form in the leaves, irrespective of their dimensions, they being generally hastate, heart-shaped, more or less scalloped, and peltate. Such, generally speaking, was the state of things up to 1877, when a new type of Caladium appeared at the Oporto Horticultural Exhibition, which included a whole series of new varieties completely differing in their form from anything that had been seen before. Instead of a heart-shaped or hastate leaf, it had a blade more or less spread out without appendages, and which appeared to be produced in some sort by the elongation and widening of the leaf-stalk. The plants of which we are speaking are typified above, and are the result of artificial fecundation as carried out by Mr. Jacob Weiss, chief gardener to the Duke of Pamela. They were shown at the Oporto Exhibition of 1877, and carried off the gold medal. Some of the more remarkable of these plants were afterwards sold in London to Mr. William Bull for £50, a sum which Mr. Weiss generously and disinterestedly devoted to charitable purposes.

If these new specimens cannot boast of being comparable with the magnificent varieties obtained by M. Bleu, they certainly differ from them entirely in their form. The leaves of several of the specimens are almost linear in shape, some of them being from 6 in. to 12 in. in length and even longer. Others, again, are more elliptical in their

character, but the whole of them have the petioles running into the leaf, as it were. In others, again, the edge of the leaf is distinctly scalloped, and although less brilliant in colour than M. Bleu's varieties, many of them are variously tinted, and approach in hue to the intense colours of the Parisian Caladiums, thus showing that progress has been made as far as the change of form goes, which may be considered as a decided step in advance. An attentive examination of these new forms seems to indicate that the parents of these Portuguese Caladiums are *C. Barileti* and a Brazilian species with leaves attenuated at the base, probably *C. Wendlandi*, but this is merely a supposition. E. A. CARRIERE.

COMBRETUM PURPUREUM.

This is unquestionably one of the most showy and useful plants that can be grown for training up under rafters, as it may be readily kept to a limited space, and is very floriferous. Except in a few instances, climbers confined to pots are not seen in good condition, from the simple fact that they require a more extended root-run; a check in this way by too great a restriction is a mistake; for, although it may make them bloom a little more freely, they invariably assume a very starved appearance—so much so as to greatly detract from their beauty. The *Bougainvillea*, however, is an exception, as that cannot well be too cramped, the tendency of this plant being to run riot if it has the least liberty. With the *Combretum* the case is different, and the best way of managing this is to partition off a corner of the floor of the house where it can have proper drainage, which may be afforded by a quantity of broken bricks; and, to ensure the interstices between these being kept open and clear, it is a good plan when forming the bed to lay some large sods of peat over them before the final filling up takes place. These settle gradually on the top, where they become embedded and leave all hollow below, in which state a border, when so managed, will last for years, and always keep sweet and healthy for the roots to feed on. Although the *Combretum* will grow in almost any soil, it prefers that which contains a good deal of vegetable matter, and where peat can be easily obtained, it is always advisable to use that principally; but in case of scarcity a good substitute may be found in a mixture of loam and leaf-mould, to which should be added about an eighth of its bulk of sharp sand to ensure perfect porosity. This mixture, pressed in firm, will grow the *Combretum* to perfection; but, like all climbing plants of its class, the great thing is to so train it that it may be fully exposed to solar influence, the effect of which is to consolidate and mature the shoots, for, without this, it never flowers with anything like the freedom it is capable of. The habit of the plant renders it particularly suitable for training up strained wires placed within 1 ft. or so of the glass, where, from its favourable position as regards light, it is sure to be satisfactory. A medium temperature, such as that of a cool stove, answers perfectly, and is quite enough to keep it in a state of luxuriant health. S. D.

SUMMER TREATMENT OF INDOOR PLANTS.

CONSIDERING how much cheaper the culture of various plants, which are largely used in greenhouses and conservatories in winter and spring, when planted out during their period of growth is, in comparison with pot culture, it is strange that this method does not find more favour. Our forefathers acknowledged its merits, but their methods of treatment were of too rough and ready a character. New Holland and Cape of Good Hope species, *Azaleas* and *Camellias*, were by them, soon after the bloom was over, taken out of the pots or tubs in which they grew and put into the mixed herbaceous borders, or into the foremost ranks in the shrubberies. The labour of watering and cleaning them from insect pests was thus very much lessened, but it is questionable if the subjects so treated would now-a-days meet with the approval of a good plant grower; for owing to the deficiency in the average of garden soils of those ingredients necessary to proper development of foliage and flower, they would not attain to the same beauty as when otherwise grown. Old practitioners, I think, failed in not making beds or borders of the mixtures of soils that the various classes of plants required. When such borders are made well-drained, where needed, and of materials of not too fine a texture, many plants do wonderfully well in them and reward the cultivator with fine foliage, healthy, green, and free from insects, and if the wood is fully ripened, with abundance of bloom; to ensure the latter, sunny positions only should be selected for the beds, which should, if possible, run from north to south. Indian *Azaleas* are very apt, after blooming profusely for two or three years, to make weak growth, and very small wiry leaves; when that happens they should be put out into the border as soon after flowering as the weather permits; if well rooted, the outside of the ball should

be loosened with a pointed stick, and in one season their renovation will be complete. It will thus be understood that the plants are to make their growth out of doors. Herbaceous heaths, of course, require a peat-bed—*Abelias*, *Boronias*, *Acacias*, *Hakas*, *Cytisus*, *Citruses*, *Hoveas*, *Correas*, especially *alba* for the making of stocks for grafting. All these should be planted out, as should also *Cantua dependens*, *Plumbago capensis*, *Agnostus sinuatus*, *Cyclamen* of all varieties, *Rhynchospermum jasminoides*, *Bouvardias*, *Pimeleas*, *Aloes*, *Pittosporum undulatum*, *Banksias*, which are required to be grown large, and *Eucalypti*. These are but a few of the genera which I have so treated, and which have always rewarded me with satisfactory results.

Stopping and pinching, when thought necessary, and in the case of such subjects as will bear it, can be done just as well as in pots. But this oft reiterated system of constant pinching and pruning back leads certainly to the attainment of a greater quantity of smaller blooms, but at the sacrifice of the longevity of the plant so treated. Graceful tassels, bunches and garlands of bloom partly hidden amongst healthy foliage, are objects of greater beauty than the round-headed and otherwise trained monstrosities too often seen. I may mention in conclusion that the *Camellia* does very well planted out, but in no case should it be put out if it has already made its growth under glass, or when an early bloom is looked for; *C. simplex* planted in the form of cuttings in a frame for two summers, and protected slightly from frost during winter, makes strong stocks for grafting or inarching. *Cinerarias* make better plants for winter and spring use if planted out in a frame; the leaf is finer, and insect pests are less troublesome. The beginning or middle of September is a suitable time to lift and repot all subjects named above that are not hardy, and for a few weeks after they are housed they must be subjected to a close but healthy temperature.

Monrovia.

SYLVESTRIS.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Amaryllises as Decorative Plants.—Few plants are more deserving of extensive culture than the many beautiful varieties of *Amaryllis* that have of late years been brought prominently into notice. They are so very distinct and majestic in appearance that for either drawing-room or conservatory decoration they are unsurpassed, and as regards cultivation they are about as easy a class of plants as can well be grown. In good loam, rotten manure and sand, potted firmly in not over large pots, they will last for years. The chief point requiring attention is to perfectly ripen off the foliage before they are stored away.—J. GROOM.

Heaths at the Ascot Nurseries.—Amongst the well-known kinds of winter-flowering Heaths the two varieties *Hyemalis* and *Wilmoreana* still keep much more in demand than others; their stout, free-growing habit and equally free disposition to bloom account for this. The same remark applies to the summer-flowering, hard-wooded sorts, which, we understand, from the quantity sold, are again being much more used for decorative purposes than they have been for some years back; the yellow-flowered *E. Cavendishi*, and the pink and red *Ventricosas*, such as *V. coccinea minor*, *V. grandiflora*, and *V. tinctoria rubra*, have the largest sale. The stock of Heaths in the Ascot Nursery consists of some 35,000.—P. G.

Planting out Camellias.—These are slow-growing plants in their first stages, but much may be done to save time by planting them out for a couple of years. At the Ascot Nurseries the centre bed of a large, low, span-roofed house has been planted with *Camellias*. They were turned out of 8-in. pots early last year well furnished selected plants; they took freely to the new soil and made strong growth, any over-luxuriant shoots being shortened: this season they have made even greater progress; in fact have done as much in the two years as would have been possible in four under pot culture. Every other plant will now, as soon as its buds show a disposition to form, be taken up and potted, and the others will be allowed to grow and flower until they are again short of room, when more of them will be similarly potted.—P. G.

Anætochili at Home.—Mr. W. B. Freeman, well known as a plant collector in India, writes, regarding the natural habitats of *Anætochili*, that he has found them at an elevation of from 3000 ft. to 4000 ft. above the sea-level, and most frequently in ravines near mountain streams. Though the temperature must fall much below freezing in winter, the plants are never exposed to the direct influence of frost, being sheltered by trees. The maximum temperature probably never exceeds 70° Fahr., and this can only be for an hour or so in the day. They grow freely in a temperature of 65°, and rot off very quickly if any decayed vegetable matter or mildew is allowed to accumulate about the stem. They should never be allowed to dry up, though free drainage is undoubtedly essential. The soil in which

they are found growing is a combination of peat and vegetable mould.—*Florist.*

Odontoglossum vexillarium.—This, when strong, bears five, six, or seven flowers to a spike, the terminal blossoms being somewhat smaller than those at the commencement. There are generally two or more up to six or seven spikes to a strong pseudobulb. The colour varies from the palest to a deep rose, and it is remarkable that the depth of colour varies much in the same plant in different years. My Orchid grower thinks that the tint of rose is deepest when the flowers open in a brisk heat; but I am not clear as to this yet. It is generally supposed that this *Odontoglossum* requires the heat of a Mexican house, in winter at all events. I believe that a few degrees, say 5° Fahr., more heat than we give to such of its congeners as *O. Alexandrae* are advantageous to it; but it is very liable to thrips, which greatly disfigure its beautiful glaucous foliage, and it will certainly thrive side by side with *O. Alexandrae*.—TREVOR LAWRENCE, *Burford Lodge, Dorking.*

Grevillea Manglesi.—This is one of the rarest and most graceful of all greenhouse shrubs, its thin, twine-like branches drooping from 4 ft. to 5 ft., being clothed with fresh green leaves and tiny clusters of white flowers. Although so distinct and beautiful it is one of those plants which do not succeed well in our greenhouses without some special assistance in the way of propagation and after culture. Propagation is not so very difficult to effect by means of cuttings treated much as one would treat those of a *Heath*; but scarcely one plant in twenty so increased will survive long enough to form a specimen like that in the Dublin Royal Botanic Gardens, which is no doubt a grafted plant. Seedling plants of *Grevillea robusta*, trained as standards, form excellent stocks for this weeping plant, than which in its own distinct way no greenhouse shrub can possibly be more lovely or desirable.—F. W. B.

Fuchsia corymbiflora.—The inclination to prefer the new to the old in plants often leads to good old decorative subjects being either forgotten entirely or relegated to the collections of the curious rather than of the general cultivator. All who have seen the *Fuchsias* in the conservatories at Hatfield or at Chiswick House will know how beautiful they are in the form of climbers, and as a pillar plant *Fuchsia corymbiflora* is now a beautiful sight in one of the conservatories at Glasnevin. Trained erect to a height of 10 ft. or more, and its growth then allowed to arch or fall unrestrained, it is exceedingly graceful, each branchlet being weighted down by great clusters of tubular flowers, vivid crimson in colour and about 4 in. in length. Treated in this way it is a sight worth going miles to see. Although long introduced, it is by no means rare; but it is only as a large specimen that it is seen to the best advantage.—B.

Russellia juncea as a Basket Plant.—Basket culture is better adapted for showing off the graceful drooping habit of this plant than pot culture, under which the long branches must have support of some kind. Then, too, when the basket is well covered, one may occasionally steal a long trailing piece for mixing with cut flowers, for which purpose the graceful sprays are peculiarly fitted. The plants should be grown in pots the first year, or till they are strong and well established. Wire baskets are best, using plenty of Moss for lining them—as this will be necessary, not only for keeping in the soil, but to prevent the earth drying too rapidly. One or more plants may be planted in each basket as may be necessary. It is, however, always best to fill the baskets tolerably full at starting, as they are effective immediately. Until the basket is well covered, the young shoots should be pegged over the sides and the bottom; afterwards permit them to grow as they like. The *Russellia* is classed as a stove plant in catalogues, but when established it may be moved to the conservatory. It is easily propagated; young shoots strike freely. It also often strikes root at the points where they touch the soil or Moss.—E. HOBDAV.

Boronia megastigma.—Amongst the numerous Australian plants that we now possess for greenhouse decoration perhaps none has attracted more attention than the subject of the accompanying illustration, not on account of the colour of its blossoms, which are far from showy, but on account of the delicious aromatic perfume exhaled by them and the graceful habit of the slender branches on which they are produced. In its native habitat it grows about 2 ft. high, and has twiggy, erect branches on which, during spring and early summer, are copiously produced small bell-shaped blossoms of a maroon-purple tint outside and greenish-yellow within. It is a native of King George's Sound and neighbouring districts, whence it was originally sent to this country by Baron von Mueller. This and the Rosy *Boronia* (*B. elatior*), of which a coloured illustration was given in THE GARDEN, Vol. X., Plate XXXIX., are two of the most desirable greenhouse plants with which we are acquainted. The plant that furnished the spray from which our woodcut was prepared was growing in Messrs. Veitch & Sons' nursery, at Chelsea, who have repeatedly exhibited this *Boronia* at the various metropolitan shows during the past few years.

Chamædorea Hartwegi.—It is the elegant or the majestic habit of Palms, and the conspicuous character and freshness of their leaves, which distinguish them as decorative plants. Some Palms also possess floral charms, in which respect none are more beautiful than *Chamædorea Hartwegi*, which develops its branched spadices, studded with numerous orange-coloured petals, during winter and spring. The male plants are more showy than the female, but when the former have shed their bloom, the latter become ornamental by the production of fruit, which remains till the close of the autumn. The *Chamædorea* is a native of the Caraccas, an elevated region near the coast of Venezuela, 10° north latitude, consequently it thrives best in a stove or an intermediate house. Plants 2 ft. high and upwards make good flowering specimens; but in order to secure an effective display, three conditions are essential—namely, liberal supplies of water and of liquid manure during the time of active growth; exposure to air and sunlight, so far as this can be done without scorching; and, lastly, the destruction of scale and bug, which often lodge unobserved in the axils of the leaves. Standard plants will succeed for several years in a 10-in. pot, but to prevent its becoming too dry during the heat of summer, I place flats below them. The soil should consist of a good fibry loam with a little sand added, and the potting must be firmly done. Fertilisation is effected simply by placing the two sexes so that the pollen falls on the female spadix; but the operation must be performed when the stigma is well seen, and when the stamens will bear a touch with the point of a knife. Our plants have bloomed in succession since November, and those which were fertilised are swelling their fruit.—JAMES SCOTT, in *The Gardener*.

Eremurus Robustus in America.—This is one of the noblest and handsomest members of the Lily family, and is a native of Turkestan. It bloomed here last year, for the first time (so far as I know) on the American continent. I received the bulb from Max Leichtlin in the autumn of 1877, and treated it as a "cool" pot plant till the spring of 1878, when I planted it in its present place in the out-door rockery. There it grew robustly, bore a scape 6 ft. high, and was in blossom during the first fortnight in June. It also ripened a considerable quantity of seeds. Encouraged by the possession of plenty of seed, and the belief that the *Eremurus* ought to be hardy, coming as it does from the home of Tulips and several other hardy plants, I ventured to leave it out over winter, and fortunately succeeded. This spring it came up with a vastly invigorated constitution and appearance, and is now (second week in June) in the glory of full bloom. It has a large tuft of many stout, linear, radical leaves 3 ft. long by 2½ in. to 3 in. wide, and a scape 8½ ft. high, terminating in a dense raceme 3½ ft. long, containing over 400 pale pink flowers, of which from 120 to 140 are in bloom at one time. Each blossom is about 1½ in. across. It lasts in beauty more than a fortnight, and presents such a striking appearance from a distance, that people passing along the street, and who seemingly care no more about garden plants than they do about the stones on the road, hitch their teams and come in to see what sort of plant it is. *Eremurus turkestanicus* is an equally rare species from the same habitat as *E. robustus*, and growing near by it, and under the same conditions has also proved as hardy and thrifty, though by no means such a strong growing or ornamental plant. It starts earlier into growth, and is done blooming by the time *E. robustus* begins. Its blossoms are dark red and brown, on a 16-in. raceme, terminating a scape 4 ft. high, and now it is bearing some seed vessels. It bloomed this spring for the first time here.—W. FALCONER, in *Country Gentleman*.



Beronia megastigma.

THE BALANCE OF HEAT, LIGHT, AND MOISTURE IN FORCING.

THE adjustment of these agents in forcing fruits and flowers under glass is a nice problem that can only be approximately determined by long experience; but as the gardener has to trust largely to his assistants—who, though they may be willing enough, are usually learners only—he cannot fully utilise his experience in this way. It has been said that the temperature should always be in proportion to the light let in. In making such an observation one feels that everything depends, in fact, upon the intelligence and perceptions of the practitioner. My own conviction is that more harm is done to plants under glass by the ill-balanced conditions of heat, light, and moisture, than by any other single cause. A Cucumber or a Vine, for example, when growing out-of-doors, in favourable seasons seldom or never suffers from weakness or debility in the foliage, and can bear various vicissitudes of weather with comparative impunity; but under glass it cannot. Alternations of dull and bright weather, as every gardener knows, cause much mischief, and the evils accruing therefrom are in most cases aggravated by conditions greatly under the gardener's control. It is questionable if any real advance is made by keeping up high temperatures during dull weather, or if it be advisable to exceed the right temperature very much by fire-heat alone. On the other hand, during sunny weather, if constant, such things as Vines and Peaches, and many kinds of stove and greenhouse plants, will stand an intensity of sunlight that is surprising, if they have been prepared for it by growth made under favourable circumstances. I have subjected Melons and Pine plants

day after day to a temperature of 115° and 120° in bright weather without the slightest injury to the foliage, but always abated the temperature greatly at night or during dull days, making up for the loss of time when the sun shone. These extreme day temperatures were, however, only given when crops were being pushed on as hard as we dared, and I do not recommend such high figures, or anything like them, in ordinary practice. This season has been an exceedingly trying one for forced plants. In my own case low temperatures may be said to have been the rule, there has been so much dull weather;

and for the same reason forcing has been conducted on the "dry" principle, but little moisture having been given to Vines and Melons, &c. Evaporating troughs have long since been removed from the houses where portable, and fixed troughs have been kept empty from the beginning, yet I never saw the foliage or crops look more promising. Melons are splendid.

Respecting the adjustment of heat, light, and moisture in their relations to each other in plant culture, it seems to me that the great want of the present time is an instrument for gauging the intensity of the light, and which would be a guide to those in charge of hot-houses, just as the thermometer is in the matter of temperature. We all know pretty well that when we trust to our sensations to gauge the temperature we are apt to deceive ourselves very much, and I have a suspicion that a light measure would alter our practice in many things. I am not aware whether any such instrument is in existence or not, though I believe photographers have means of estimating the intensity or quality of light to some extent; but the man who will furnish us with such an appliance would benefit gardeners, and himself also, I hope.

J. S. W.

HEATING AND VENTILATING.

IN THE GARDEN (p. 494) in an article on heating by hot water the following passage occurs: "Suppose that an opening is made in a hot-house wall at the floor-level, and another in the opposite wall at the top; a current of air will enter at the bottom, and, passing in a straight line to the top opening, escape thereat, the rate at which it travels being proportionate to the difference in temperature of the outside and inside atmospheres. To secure an even distribution of

White-flowered Borage.—When at Barcelona on May 5, I found on the rocks between the fort and the sea several plants of the white variety of the common Borage (*Borago officinalis*). I succeeded in bringing plants home in good condition, and they are now in full bloom. It is a very delicate and beautiful plant.—H. HARPER CREWE, *Drayton-Bauchamp Rectory, Tring*.

ventilating effect throughout the house, the ventilating inlets and exits must be set at regular distances, and the total area of the inlets should be more than that of the exits, to prevent back-draught." It is the last sentence of this quotation to which I wish to draw particular attention. It is satisfactory to see that demonstrated precisely—or scientifically, as one might say—which one has practised for long and recommended to others as correct practice. The advice given in the above quotation just amounts to this—that in ventilating Vineries or other fruit-houses as they are at present constructed most air should be admitted at the bottom or front ventilators, and least at the back, a practice which I have over and over again recommended in the culture of hot-house fruits of all kinds, and which has been as emphatically condemned by others, and by some noted cultivators too. In fact, the contrary practice to that recommended by Mr. Woodroffe is enforced in the great majority of instances, gardeners having some unaccountable prejudice against giving front air. Top or back ventilators are always opened first, and when those cannot be opened much further the lower or front shutters are opened a little. Yet the results of this practice are exactly what Mr. Woodroffe describes: there is an undue back-draught; the consequences are seen in the state of the trees at the top and bottom of the house—one portion of the stems is half starved and the other roasted. To equalise the temperature of lean-to or span-roofed houses in which the pipes are placed close to bottom ventilators, I estimate that a third at least more air should be given at the front than at the back; but in practice I exceed this myself, early in the season particularly. It was not, however, through reasoning the matter out, as your correspondent has done, but I was led to adopt the practice through observation of the effects of the different systems on the inmates of hot-houses. In the case of plant-houses where the side shelves are close to the ventilators, the plan of giving more front than back air does not answer so well, but that is the fault of the construction of the house and not of the ventilation. J. S. W.

M. ANDRÉ ON LANDSCAPE GARDENING.

THE remarks made in THE GARDEN of the 7th June (p. 447) on my treatise on parks and gardens and their design were very gratifying to me. Praise and criticism coming from an artist who has been so long *facile princeps* among the landscape gardeners of England should be welcomed with interest and respect. I therefore thank Mr. Marnock for having given such a favourable opinion of my "Traité des Parcs et Jardins." It is well for the readers of THE GARDEN to have the artistic ideas of a man who has done so much for the art of gardening in England, and particularly when it is known that up to the present time he has published nothing on the subject. Mr. Marnock very kindly remarks that my book will have a large influence on the landscape gardening of France, and the terms in which he speaks of my work were very agreeable to me. I must equally thank him, too, for having expressed frankly his criticism in regard to certain points which he considers defective. He chiefly charges me with forming too many walks and drives, which, he says, destroy all freedom of view, and quotes Plate IV., page 385, in corroboration of this statement. I am glad of an opportunity to explain this matter, in order to show that my ideas in this respect are, with certain slight exceptions, similar to those of Mr. Marnock. I am so fully persuaded that unity and simplicity as regards effects and amplitude of view should dominate in landscape gardening, that I have repeated these precepts in nearly every page of my book. I do not want to bring forward statements from my "Treatise" to confirm what I say; but I may perhaps be permitted to quote the following (p. 376): "Too many curvilinear walks make gardens resemble a horse-training establishment. Walks and drives ought to lead naturally and agreeably to the desired place. To multiply them without reason is a fault very often committed both in France and in Germany. The opposite excess obtains in England, where frequently parts of parks very agreeable are inaccessible from want of approaches, the landscape effect only being studied. The happy medium is to form convenient and spacious drives and walks wherever there are interesting objects to visit, and to let them be seen as little as possible. The means to obtain this result are, among others, the judicious employment of screens and plantations, a slight depression of the surface of the walks or drives compared with that of the general level of the lawns around," &c.

No doubt it is well to hide walks as much as possible, and to prevent them from intruding upon and destroying fine landscape scenes, but in our effort to secure ample and quiet views it is easy to get into another kind of excess, and to place the garden on the same level as the sketch of a picture, which is to be seen from only one point of view. I gave an example of this kind of excess when I compared in several places the actual mode of tracing employed by landscape gardeners

in Germany, England, and France, and illustrated the subject by three engravings (see pp. 393, 394, and 396). I showed there that the first of these plans—the German one—presented a surface all cut to pieces, views little studied, and a total absence of any harmony in composition. The second—the English plan—is one of Mr. Marnock's own, although I did not name him in connection with it, as I had a slight criticism to make in regard to it. I remarked that in this park we found great simplicity in its details and special severity as regards the absence of walks—a severity which was carried out to an excessive degree, because it destroyed the means of getting easily about the various parts of the grounds a little way from the house. What seemed to have concerned him most was the creation of beautiful views from one point only—that of the terrace. The third plan—the French one—is mainly devoted to graceful curvilinear walks and drives, which also cut the landscape into childish details. I added, as a conclusion, that a happy medium between these three examples would constitute a satisfactory garden plan without losing the character of any of the styles, and that perhaps such a garden would be that of the future.

But, it may be said, why preach principles you do not practise? Are the parks you have laid out and the views you have published in conformity with the principles which you have laid down? I have always tried to make them so; but I have not always succeeded in persuading my readers to examine attentively my descriptions. If this had been done in Mr. Marnock's case, he would have seen, in speaking of the La Chassagne (Plate IV., p. 760), that I said myself that its plan would seem "bizarre" if the fact were lost sight of that the ground was very undulating and varied to excess. All the southern part of the park was on a very steep slope, which justifies bringing the walks nearer each other and their apparent parallelism. It is, therefore, difficult to criticise this properly from plans only. Something may be said in the same way in reference to the Central Park, New York, and similar works, the plans of which seem cut in pieces, whereas in reality vast spaces have been reserved, so that the breadth and unity of the scenes should not be spoiled.

It may be seen in various parts of my book (pp. 758 and 768) that I attack without pity the exaggerated cutting up of lawns. It will be admitted that it is very difficult to form a fair judgment on such delicate matters without seeing the parks and gardens referred to, and of which the plans very often give an imperfect idea. With these slight reservations I completely agree with Mr. Marnock's way of looking at such work, and the book which I have just published is, in its entirety, really an advocacy of Nature in the formation of gardens. I would not, however, wish to wholly exclude architecture from our art, but I have often said that it should only be introduced with great reserve and with consummate skill.

E. ANDRÉ.

Chinese Botanical and Horticultural Literature.—

A writer in *Der Deutsche Garten* states that the imperial library of China contains 15,000 works on the cultivation of flowers and botany, whereof about 500 are devoted to the Rose alone. Such quantities of Roses are grown in the Emperor's gardens that the sale of the essence prepared therefrom annually brings £5000 into the treasury. Talking of Chinese botanical literature reminds us that the Japanese have already adopted the botanical nomenclature recognised in Europe, and their illustrations of the flora of Japan, to which the Latin names are attached, are exceedingly good.

Effects of Drought on Plants.—The amount of drought which some plants will bear with impunity is surprising. Dr. G. Schweinfurth, in Petermann's "Mittheilungen," gives an account of his recent journey across the Arabian desert from Heluan to Qeneh, and mentions some interesting facts concerning the vegetation. In Wady Qeneh, he states, no rain had fallen for six years, but some Acacias and Tamarisks were still green and flourishing and apparently unaffected, whilst the last traces of herbaceous plants had disappeared. In a more favoured part he found the valleys covered with *Salvia palestina*, a very handsome species 3 ft. high, with a profusion of sky-blue flowers.—*Gardeners' Monthly*.

Cut Flowers for Hospitals.—The practice of sending cut flowers to hospitals is becoming more and more general every year, and a great boon to these institutions they are, for by no one are flowers more highly appreciated than by their invalid inmates. Amongst the most liberal contributors to such places is Mr. Joseph Stevens, who has for some years past sent from his garden at Byfleet as many as two hundred, and even more, good-sized basketfuls of cut flowers during the season—an example well worthy of imitation. We learn too from Mr. Stevens that most of the railway companies have, for the last two years or so, carried all parcels containing flowers or fruit for the hospitals at half the ordinary parcel charges.—W. G.

OUTLINES OF THE PARTS OF PLANTS.

THE figure or outline of a leaf, a leaflet, a petal, or any other part of a plant is of great importance in descriptive botany, though in each

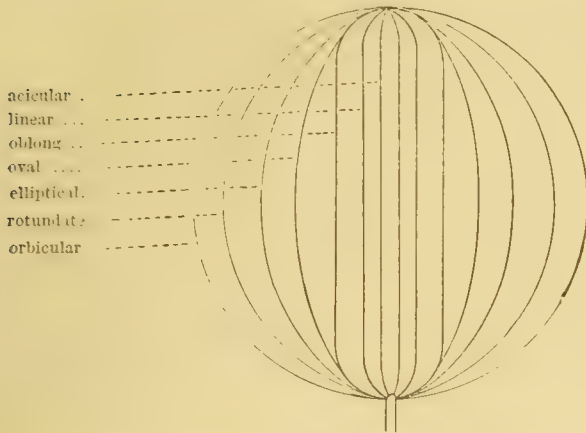


Fig. 1.

case it is subject to more or less variation. In most plants the amount of variation is not great, and few words are needed to indi-

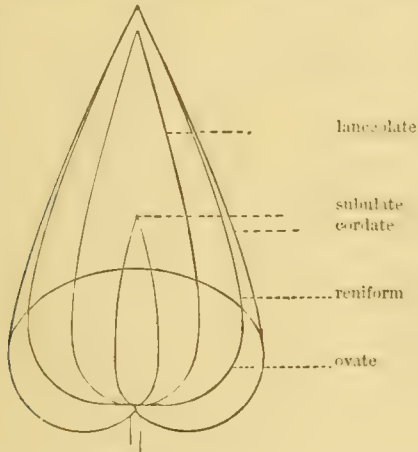


Fig. 2.

cate the shape of the leaves, &c. There is sometimes a considerable diversity in the root-leaves and uppermost stem-leaves of herbaceous

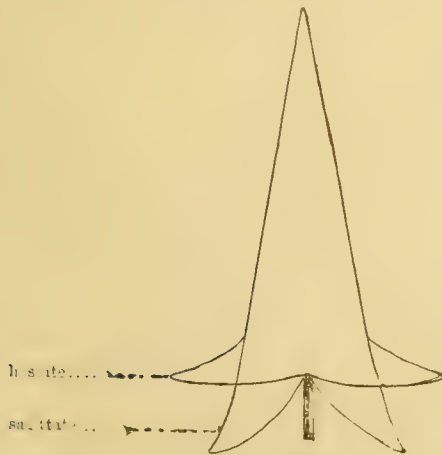


Fig. 3.

plants, and it is usual to describe root and stem leaves separately, albeit there is generally a gradual transition from one to the other.

On the other hand, *Lehneria umbellata*, an Indian Cucurbitaceous plant, presents almost every conceivable form of simple leaf, inasmuch that the leaves can only be described as polymorphous or pantomorphous. There is an admirable contrivance in Professor Oliver's "Lessons in Elementary Botany" for showing most of the principal forms with their designations at a glance, which is reproduced here. The terms apply equally to any flat parts of a plant, to simple leaves, the leaflets of compound leaves, to stipules, bracts, petals, sepals, &c., and the same terms are employed to indicate the general outline of an organ, whether the margin be entire, or toothed, or lobed. There are three groups of shapes, connected, of course, by every intermediate gradation. Thus in fig. 1 the forms are of the same breadth throughout their length, or broadest in the middle. In figs. 2 and 3 the broadest part is below the middle; and in fig. 4

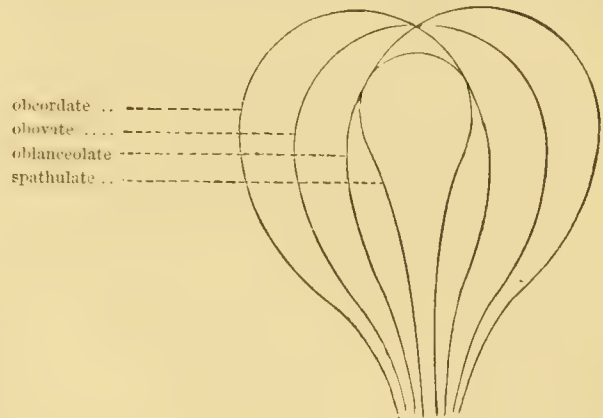


Fig. 4.

the broadest part is above the middle. When one term inadequately describes the shape of a single leaf, &c., it is usual to combine two, as ovate-lanceolate, linear-lanceolate, cordate-ovate, &c.; and when the leaves or other organs of a plant vary, we say from linear to oblong or lanceolate, as the case may be.

W. B. HEMSLEY.

ST. SWITHIN'S DAY.

THE rainfall proposes apparently to continue as vigorously in July as in June. If it happen that the flood-gates of heaven are still open on or during St. Swithin's day, there will be many superstitious people who, in addition to their present discomfort, will have the melancholy satisfaction of considering a downfall for forty days longer an absolute necessity; therefore, in the hope of dispelling somewhat the clouds, I propose, with permission, to say a few words as to the true state of the case. We all know the popular lines—

St. Swithin's day, if thou dost rain,
For forty days it will remain;
St. Swithin's day, if thou be fair,
For forty days it will rain no mair,—

but we do not all know the reasons why we should not lay much stress upon them.

First.—By whose authority is it, we may ask, that St. Swithin is allowed of all saints in the calendar to be supreme in matters of weather? Other nations have their gloomy days, and, I may add, their gloomy saints with conflicting claims. The French, for instance, have two or three:—

S'il pleut le jour de St. Médard (June 8),
Il pleut quarante jours plus tard :
S'il pleut le jour de St. Gervais et de St. Protas (June 19),
Il pleut quarante jours après.

Secondly.—The "trough" or coffin of St. Swithin was moved from the outside to the inside of the church at Winchester on the 15th of July, 971 A.D., some hundred years or more after his burial. Now, the popular story is that the proceedings on this occasion were much disturbed by heavy rain, and that (owing, I suppose, to the disgust of the saint) the weather has ever since for forty subsequent days been governed by its own conduct on that particular one. But what was that day? It was the 15th, old style; that is, the 27th now. Is, therefore, the weather now-a-days to follow, not merely the translation of the saint's body, but also the subsequent translation of the date itself, or is it to desert the saint and cleave to the original date, that knows him no longer, as its day of departure? This difficulty alone might comfort the most superstitious.

Thirdly.—A quotation from "rare Ben Jonson," a century and a half before the adoption of the new style, proves that the 15th was old style ("Every Man out of his Humour," Act 1, s. 3):—

"Sordido (reading an almanac).—O, here, St. Swithin's, the xv. day—variable weather, for the most part rain: good. For the most part rain! Why, it should rain forty days after now, more or less; it was a rule held afore I was able to hold a plough, and yet here are two days no rain. Ha! it makes me muse."

Fourthly.—Perhaps the common-sense view is that after a dry spring the chances are in favour of a wet time after the middle of July. That the contrary may now be the case will be the earnest desire of all, but the probability of dry or wet must be left for the prophecies of the scientific and the weatherwise. Meanwhile, it can do no harm to beg St. Swithin to be propitious, unless, indeed, he desire to bear the blame of a drowning world upon his shoulders.—J. E. O., *Llandaff*.

— I send you a memorandum of the results, reported some years ago, of twenty years' observation at Greenwich concerning St. Swithin's Day. There were six years in which rain fell on St. Swithin's Day. During the forty days immediately following the 15th of July in these six years collectively rain fell on 110 days. St. Swithin's was a dry day in fourteen of the twenty years. Rain fell, in the subsequent 14 × 40 days, on 267 days. Now, 110 divided by 6 equals 18 and 14-42nds.; 267 divided by 14 equals 19 and 3-42nds, so that more rain fell in the forty days following St. Swithin, on an average, in the years in which that day was dry than in which it was wet. Therefore the adage is nought in every view of it.—ALICUS, in *Times*.

THE KITCHEN GARDEN.

THE POTATO CROP IN THE MIDLANDS.

It is instructive in a season like the present to note the effects of the weather upon the Potato crop. A Potato that will grow with vigour under unfavourable conditions must be the best Potato to plant generally where a crop is desired, for if we can but get tops we will get Potatoes in more or less abundance. In a quarter planted here early in May, which was as soon as we dared go on the ground, there is a marked difference in the appearance of some of the varieties, and I may just state that our climate is one of the latest and coldest in England. Among earlies Veitch's and Rivers' Royal Ashleaf and Mona's Pride look middling and all about the same, but are very late. Dalmahoy, from excellent Scotch sets, is affected with the "curl," which is spreading and getting rapidly worse, many plants being already ruined by it. Liability to "curl" is the worst fault belonging to this otherwise favourite variety. York Regents look considerably better, but are also suffering from want of warmth. Porter's Excelsior looks weak and bad, and will not produce much. Schoolmaster promised middling at the outset, but is beginning to look sickly, and will be an indifferent crop if the weather does not quickly mend. Magnum Bonum looks wonderfully well, and is much the best of the lot, as yet showing no signs of suffering. It is evidently one of the hardiest kinds. Champion and Grampian come next, and are shorter in the stem than Magnum Bonum, but look as well otherwise. I wish half the quarter or more had been planted with these three sorts. On an early border where the sets were sprouted some inches before planting, Kidneys look much better, and are a month before the main crop of the same kind, which were planted out earlier but not sprouted. The common Ashleaf is the most robust of the lot by a good deal, Mona's Pride is next, and Belvoir Prolific and French Prolific third. These last two are grown together, and I cannot at present distinguish the slightest difference between them in foliage, habit, flower, or crop. I begin to suspect they are the same. I had the one from an English house and the other from a Scotch firm, and both guaranteed true. This description of the crop, I may state, applies to other gardens in the neighbourhood. The weather has been most unfavourable—wet and cold. For the past week or more the thermometer has gone down every night to 44°, 45°, and 48°, and this in July. I am assured that snow was observed to fall two or three days ago on the hills a few miles off, and I am disposed to believe it. For days we have had a snowy-looking sky, but to-day the wind has veered round from north to south-east, and we have torrents of rain again. Over 7 in. of rain have fallen within the last six weeks.

J. S. W.

Sheffields.

Best Time to Sow Parsley.—The last week in July, or it may be a little earlier or later according to the season or locality, is the best time to sow Parsley. I have a bed of the Fern-leaved

variety that was sown last year about the time I have stated, which all through this cold ungenial season has given us an abundance of handsome curled leaves, and not 5 per cent. of the plants have or will run up to flower this year. It is the missing of the usual time of flowering that makes it so valuable, and this is brought about by sowing later than the usual or natural time. Every plant that was sown early last spring has "bolted" and been cleared away. I have adopted this plan for years, and invariably find this crop far more valuable than sowing in spring. I intend lifting some of the roots by and by, cutting off all the large leaves, and planting them 1 ft. apart in some convenient place where a frame or some other shelter can be placed over them at the approach of bad weather. In addition to this supply, two or three dozen roots will be potted into 6-in. pots, to be prepared for all emergencies.—E. HOBDAV.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Seakale from Seed.—"S. D." (p. 26), in estimating the qualities of Seakale from seed *versus* roots, forgets two or three important points. "Seedlings," he says, "at a year old, have only one crown, whereas plants obtained from roots have two or three; and therefore the yield from the same amount of ground may be safely reckoned at two-thirds more in favour of the plants from roots;" a statement by no means correct: indeed, I will undertake to grow as many single seedling plants in the same space of ground as "S. D." will grow crowns, under equal conditions; and the seedlings will be as good, and probably better, than the crowns. It is well known that cultivators thin out on the ground according to the crops, and I did not think it necessary to refer to such an obvious practice in the case of Seakale from seed. "S. D." further says that "plants from roots are up and growing before seedlings are above the ground." Just so; but the seedlings overtake and usually outgrow the plants from roots. Lobelias propagated from slips, as "S. D." knows well, and many other plants besides "are up and above ground" before seedlings; but by the end of the season the latter will have made twice as much growth as the cuttings, for which reason cuttings in that case are preferred. Seedlings are always the most vigorous. The fact that "S. D." plants his roots only 1 ft. apart, gives one a good idea of his plants. Most people find it necessary to allow 2 ft. and 2½ ft. between the rows, and I have covered the ground with seedlings 2 ft. by 2 ft., and the leaves were overlapping each other then. I recommended the plan of growing seedlings annually for forcing the same year as a good one for those who could not afford space to have two plantations on the ground, and I can with the utmost confidence recommend it wherever the climate is ordinarily favourable and the soil good. The culture that the market gardens give should produce grand plants.—J. S. W.

Peas in Pots.—There is something novel in the culture of Peas in pots for the production of an early crop under glass, but there is nothing more simple, and it is only a question of room. Dwarf kinds such as Unique, Early Gem, and Blue Peter, that usually grow 20 in. in height, will, in pots, not grow taller than 24 in. if the plants be kept near the glass, and have sufficient air. In raising a quantity I have found it to be the best and simplest plan to sow picked seed singly in small pots, and when in a gentle heat these are ready to repot, as they will be in about three weeks, to give them a single shift into 7-in. pots, in which the plants will do well. I have found the support of a single stick to which the haulm is tied at intervals to be ample, and if the plants produce side shoots ever so freely, as good branching kinds will, the single support will hold the entire plant erect. With Peas, as with other plants in pots, manure water or Clay's fertiliser sprinkled occasionally is productive of very good results. Under such culture as could be given them in a cold house, such kinds as Dean's Dwarf Marrow have produced pods of the finest quality earlier than the earliest white round kinds in the open air. With heat these might be ready a month earlier. Single plants so grown will produce from thirty to forty pods if well treated, and these will comprise some half-dozen gatherings. In a large place some 200 plants in pots would furnish a large quantity, and, if Dwarf Marrows, of such superior quality as to place the commoner whiterounds in the shade. In few places is any systematic attempt made to produce Peas earlier than can be obtained out-of-doors, but it is quite easy to do so as I have shown. Next to Potatoes no other vegetable is so acceptable at the table, and few can be forced more freely.—A. D.

Potatoes in Pots.—Whilst it is not possible to secure such fine tubers from pot culture as in frames and in the open air, yet really good Potatoes may be obtained in this way, and of even more delicate quality than in any other; the roots being restricted, and the haulm growth less rank, the tubers contain a larger amount of nutriment, and are more mealy. In numerous large gardens there is abundant space in orchard houses and Vineries that might well be

utilised in this manner. One strong tuber planted in either 9-in. or 10-in. pots will produce a potful of good tubers, and the earlier the sorts the better the results. It may be accepted as certain that the forcing of Potatoes is more easily carried out under pot culture than in frames. In the latter case the simplest method is by means of manure pits, especially where frames are placed over prepared hot-beds, but early in spring the maintenance of a high temperature in these is difficult, owing to their exposed surface. The best sorts for pot work are—of white Kidneys, the Ashleaf, and of white Rounds, Union or Early Market. Kinds having fairly dwarf haulm are indispensable. The tubers may be planted in bulk at any time from November onwards, and can be kept in any cool house, such as an orchard house, Peachhouse, or late Vinery, and be introduced into heat in relays as desired. I find the best results follow from the use of 10-in. pots, as in these the plants can well develop their cropping qualities. The sets are planted 3 in. below the surface, and if the tubers become exposed some more soil can easily be added. Clay's fertilisers sprinkled occasionally over the surface is productive of good results.—A. D.

Preserving Tomatoes.—I can hardly think that "A. F. P." (July 5) speaks from actual experience when he refers to ripe tomatoes in the following terms: "Covered with strong vinegar and kept in jars they can be preserved for months, ready when required to do duty as a salad." In the first place Italians, who know and employ almost every means of cooking and eating Tomatoes, never use the ripe ones for salad; those which are partly coloured only are much more piquant. And secondly, they maintain that unless the fruit is put into vinegar (in the case of pickles) quite green, the vinegar consumes the delicate outer skin and the pulp dissolves into liquid. My own experience fully confirms the popular idea; as a bottle of pickled Tomatoes was completely spoiled by three or four coloured fruits having been put into it by mistake. At the end of two months their skins gave way and spoiled the whole bottleful. That the failure was not an accident was proved by the other bottles of the same batch (three in number) which contained none but green fruits, and which were pickled in the same manner and with the same vinegar, keeping for a year in excellent condition.—CRAB.

A SUBSTITUTE FOR BOX.

THE prejudice that exists in favour of Box as an edging plant has often been a matter of surprise to me; nothing is so popular as Box, and, perhaps, nothing looks neater, and where it will thrive and it receives that care and attention which it requires to be at all satisfactory, perhaps no edging looks better (of course, I am speaking of a permanent edging); but, where it does not grow kindly or becomes neglected, nothing looks worse, and it is oftener seen in the latter condition than in the former. It has been frequently asked—and, if I recollect rightly, the question was mooted some time ago in THE GARDEN—if there is any substitute for Box. I feel happy in being able to answer in the affirmative, as I have for some years used a plant as an edging, not merely as a substitute but one which is decidedly superior to Box, and one, moreover, which, as far as I am concerned, will wholly supersede it, as, while it can be procured, I am determined never to plant Box again, even if sure of its thriving. I have a small Dutch or Italian garden in front of my house, the whole of which was originally edged with Box on gravel. The Box always wanted mending, and I was compelled to have a reserve for patching purposes; ultimately, I threw up the Box in despair (it had nearly gone off of its own accord) and set myself to solve the problem—is there nothing as good or better than Box? Having a very large collection of Saxifrages, and remembering having seen that rather coarse plant *S. umbrosa*, or London Pride, used as an edging in places about towns where no other plant could live, I cast my eyes on the Geum section of the leathery-leaved Saxifrages; this section has, in the type, neat orbicular or reniform leaves. Some of the forms, such as *crispa*, *gracilis*, *dentata*, and *densa*, are beautiful miniature plants, none of which would disgrace the choicest collection of Alpines. *Saxifraga Geum densa* was the one I took in hand as a substitute for the precarious Box, as, owing to its tufted, dense habit, it can be broken up and will go farther in planting than the others, though, as plants, *gracilis* and *dentata* are more charming. A small tuft of *S. Geum densa* will break up and plant a garden, and I only wish those who care to see a neat, durable, and easily-managed edging would call and see my garden. Certain I am that the plant if once seen would be planted by the mile.

The advantages of this edging plant are its neat, dwarf habit, its permanent lively colour, and the facility with which it may be propagated and planted; unlike Box it never requires training or clipping; it will thrive as well in towns as in the country, in any kind of soil from damp clay to dry gravel, and it may be planted at any or at all seasons; and, whereas Box, besides the labour attending clipping, often looks shabby a long time after that operation, this

edging has one cheerful, uniform appearance at all seasons. It seems a plant peculiarly adapted for the indifferent soil too often met with in town gardens, actually looking neater in poor, sandy material than in a rich soil. It would make a fine plant for bands and belts and ranges of green in city courts and squares, where a blade of Grass could not live, and as a green massing plant in parks and public gardens it would be invaluable; bands and belts of Ivy or figures on gravel would be much improved by a band of this plant round them, the pea-green of the Saxifrages relieving the dark hue of the Ivy, and even in the finest of kitchen gardens where tile or stone edgings are sometimes used, an edging of this plant on the gravel side of the tile would give the garden a sprightly appearance at all seasons of the year.

I have said this edging is permanent, and so it is; however, where extreme neatness is required it may necessitate re-planting every third or fourth year, an operation which does not involve a tithe the labour needed in re-planting Box. With a clean sharp spade commence at one end and shovel it off level with the ground, place it neatly on one side, leaving the roots of the cut-off edging in the ground. This is of advantage, and keeps the ground solid and firm where the new cut is to be made. Stretch the line exactly where the old edging grew; cut down a nick 1½ in. or 2 in. deep, and having the old edging before you, select bits of an equal size and plant them as you would Box, only the operation can be performed with greater rapidity. I would undertake to plant 80 yds. or 100 yds. in a day. It will be found that of the old plants cut off with the spade every bit will have roots left enough to ensure growth.

Ormskirk.

THOMAS WILLIAMS.

GARDEN DESTROYERS.

THE MAY BUG IN FRANCE.

WHILE we in England have much to endure from insect pests we have reason to be grateful for the comparative immunity which we enjoy from the ravages of that greatest of garden destroyers—the cockchafer grub. Those who may never have had the opportunity of witnessing upon a large scale the ravages of this insect can scarcely form an idea of its voracity and the havoc it is capable of working in a short time. The "ver blanc" is a name of terror to the Norman gardener and peasant farmer, as well it may be, for it so often sweeps off in the most complete manner the results of his labour and skill. Nothing appears to enjoy an immunity from its attacks; trees are denuded of foliage by the perfect insect, and all kinds of vegetables and flowering plants, and even young trees, have their roots devoured by the larvæ. Pasture land, too, especially when in the neighbourhood of woods, is often so worked by the grub as to be entirely ruined. There is much wood in some parts of Normandy, and these districts are apt to suffer terribly, the woods appearing to harbour the insects, which descend in clouds upon the country round about, depositing myriads of eggs in the gardens and fields. The loss annually sustained by the ravages of this insect must be enormous, and it is by no means rare to hear an unsuccessful cultivator attribute his failure entirely to its influence. A very striking instance of the destructive power of the larva once came under my observation. An individual of good abilities rented a piece of ground of several acres for the purpose of converting it into a nursery and market garden. It was cropped partly in the usual manner with vegetables and partly with shrubs and standard Briers for budding. All went well until about the time when Rose buds were well taken, when the grub commenced its attacks, and in the course of a month scarcely anything remained uninjured. Vegetables of all kinds, shrubs, and Briers all fell a prey to this voracious insect. Of 7000 Briers scarcely as many hundreds were left. Searching for and destroying the grub seemed to be of no use; the soil was alive with them, a single spadeful of mould bringing to light a dozen large larvæ. When at Mr. Wood's nursery, at Rouen, some years ago, I saw a number of fine standard Rhododendrons which were destined for the Paris Exhibition of 1867. I was afterwards informed that the grub had made a clean sweep of them. The trouble and annoyance which the larvæ are capable of inflicting upon the flower gardener are very great. Beds of Pelargoniums are often cleared off, and the grower has to keep a reserve stock in hand to fill up the gaps which occur. Gardening under such circumstances becomes not only tiresome, but very unsatisfactory, and those who have once had to contend with this scourge will estimate at its full value any immunity which they may enjoy from its attacks.

J. CORNHILL.

Mice and Yuccas.—A fine plant of *Yucca gloriosa* came by its death during the past winter in an unusual way. Driven doubtless by lack of food, a mouse or more than one attacked the plant,

which grew just at the head of the lake in the grounds at Heckfield, and, eating its way in the case of each of the three stems into the centre of the wood just above the ground, bored holes about $1\frac{1}{2}$ in. in diameter some 15 in. upwards, so that the entire plant collapsed. This incident may prove an inducement to those who have Yuccas in their gardens to occasionally look over their stems during the winter months, and thus check in time the depredations of vermin.—A. D.

Gooseberry Caterpillar.—For many years we have had a branch of the common Gorse when in flower put into the middle of each Gooseberry bush as early in the spring as it can be procured, and we find it effectual in keeping them free from caterpillar.—M. E. T., *Belfast*.

Sawdust v. Slugs.—I have found the following plan of getting rid of slugs very efficacious, namely, sprinkling sawdust round the plants as one would quicklime and soot. The latter when once wetted lose their effect, but sawdust retains its virtue however wet, and, sticking to the slugs, prevents their approach. When dry, slugs, &c., detest it.—ESTHER E. CLARKE, *Sunnyland, Ramsey, Isle of Man*.

ANSWERS TO CORRESPONDENTS.

Gooseberry Caterpillars.—How am I to get rid of these? My Gooseberry bushes are quite ruined by them.—CONSTANT READER. [Freshly powdered Hellebore will kill the caterpillars; but care in it be taken to free the fruit from it before it is used.]

Vine Leaf Excrescences.—H. F. B. The little green excrescences on the under sides of your vine leaves are harmless. They simply indicate that the viney in which the leaves are produced is kept too close and moist.

Diseased Cucumbers.—In the midst of a successful growth of Cucumbers I found lately a disease showing itself in the form of a brown crust on the rind of the fruit. Is it fungoid?—AMATEUR SUBSCRIBER. [There is no fungus on the specimen sent. We should be inclined to refer it to a form of "gumming" as cultivators term it, but we do not know the cause or cure.—W. G. S.]

Cheap Pits.—What is the cheapest sort of pit? It does not matter about its being at all ornamental, cheapness and usefulness being my aim, and I think of putting it up myself. Is there a useful and cheap heating apparatus?—ROSE. [Pits with turf walls are the cheapest. Watson, of St. Albans, has what he calls a guinea boiler.]

Hardy Palm Flowering in Hants.—We have on our lawn a dwarf Palm, which will shortly be in full bloom, and, thinking it unusual to see such in England, I write to ask if you know of another. Our plant is of about seven years' growth, and has never been protected by any covering during winter. Last year it bore four spathes of bloom, and this year six. Our gardener has given me the following dimensions of this plant, viz., "Height 5 ft. 4 in., width 6 ft. 8 in., circumference 20 ft., height of trunk 2 ft. 10 in., circumference of trunk at base 2 ft. 10 in."—A. E. [There are two fine plants of the hardy Palm at Heckfield, growing in naturally sheltered positions, but without any other protection. They are now from 11 ft. to 12 ft. in height, and the same in width. Many of the leaves measure 24 ft. in width, and the trunks of the plants are upwards of 4 ft. in circumference. Both are now bearing seven flower spathes, which are at least 2 ft. in length. The late severe winter does not appear to have injured them farther than slightly browning a few of the oldest leaves.—A.]

Potatoes Failing.—The same results that have befallen "R. G.'s" Irish Rocks (p. 24) have also befallen many other breadths of Potatoes that were planted early in stiff, cold land. Owing to continued heavy rains and an exceedingly low temperature, the sets pushed weakly, imperfect shoots, and these very largely rotted before coming through, or were eaten off by slugs. In many cases in this locality large breadths of early-planted Potatoes have been ploughed up, the sets having rotted in the ground. It is a mistake to plant Potatoes too early, and especially in soils that are cold, stiff, or retentive of moisture. In such, and during such a season as the present, failures in the Potato crop must be frequently looked for.—A. D., *Bedfont*.

Cutting down Pot Rhododendrons.—Kindly inform me whether large specimens of Rhododendrons, which have been grown in pots for years, and which are now getting leggy and unwieldy, may be safely cut back after flowering, and if so how closely to the stem may the knife go?—H. B. [The ordinary varieties of R. ponticum may be cut down at almost any time of the year, but the operation is best performed just after the flowering season. If the plants in question are greenhouse kinds, they may be cut back after flowering, leaving about 1 ft. or $1\frac{1}{2}$ ft. of stem. After the operation they should be kept in a close and cool house or frame until the shoots are a few inches in length, when they should be gradually hardened off.—G.]

Climbers and Wall Plants.—The names of a few greenhouse climbers, flowering and evergreen, which would quickly cover the back wall (45 ft. high), and roof of a newly built house, would greatly oblige me. The conservatory has a southern aspect, and will be heated moderately in winter by a flue. Which of the red Tacsonias and what Acacia would be most satisfactory for the purpose? Should these plants be grown in large pots, or in borders? the latter in this case must be necessarily over the flue. What would be the proper winter temperature for these and other conservatory climbers? A few names of hardy climbers for the brickwork outside the house will also be considered a favour.—M. [For covering the roof I would recommend Tacsonia insignis, T. exoniensis, Lapaeria rosea and alba, Solanum jasminoides, Tropaeolum Ball of Fire, Cobaea scandens variegata, Clematis Lord Derby, Fuchsias of various free-growing kinds, and Acacia Riceana. For covering the back wall I would select Habrothamnus elegans, Acacia dealbata, A. lophantha, Abutilon Thompsoni, Swansons Osborni, Plumbago capensis, Rhynchospermum jasminoides, and Bougainvillea glabra. The last-named plant is generally considered to require a stove, but I have grown it successfully where the frost is only just kept out in winter, cutting it well back in spring to get new growth, which produces flowers abundantly in August and September. Myrtles are likewise good wall plants, as are also the more robust-growing scarlet Pelargoniums, including the double-flowered kinds. In a light house I have had scarlet Pelargoniums in bloom pretty well all the year

round. The Heliotrope, again, does well, and a plant of it should be included for the sake of its flowers for cutting. It must have a light position. If a border can be obtained over the flue of sufficient depth without becoming too hot and dry, I should prefer planting out to pot culture. If this, however, cannot be done good-sized pots must be used, and as the plants cannot often be re-potted the pots must be well drained, and the soil as full of fibre as possible, mixing with it a few crushed bones. The winter temperature may range between 40° and 50°, taking the former as that of the night temperature and the latter as that of the daytime, but a degree or two above or below these figures will not matter much. If the house is expected to produce plenty of blooms in winter 5° higher may be allowed. Hardy climbers may consist of Tea Roses, Berberis Darwini, B. stenophylla, Ceanothus azureus, Crataegus Pyracantha, Wistaria sinensis, Jasminum nudiflorum, Forsythia viridissima, Chimonanthus fragrans, Pyrus japonica. Clematises consisting of various hybrids, C. montana, and C. Flammula, Garrya elliptica, Escallonia macrantha, Honeysuckles, Jasminum officinale, and Virginian Creeper.—E. H.]

Beetles.—Is the enclosed beetle destructive.—F. B. [The beetle sent is very destructive to the gardener's worst enemies and should be carefully petted and encouraged. It is Oxyptus o'eus, one of the Stagbeetles, sometimes called Devil's coach horse.—W. W. S.]

Cucumbers.—Amateur.—The soil sent was mixed with a fungus-like substance, which seems to spread on the surface. We should recommend that the earth in the Cucumber frames be carefully removed, and new soil introduced.—W. W. S.

Conifer Seeds.—A. M. A.—Sow them now in pans filled with loam, and place them in a cold frame. The only care required is not to keep them too wet.

Diseased Peach Leaves.—M. S.—They are blistered, the result of the unfavourable season which we have had. See some remarks on this subject in another column.

Osiers.—C. M. A.—Apply to Mr Sealing, Basford, Notts.

Eradicating Gorse.—What is the best way of getting rid of Gorse? That to which I refer has been grubbed up, and grass laid down in its place, but it has grown up again in the course of two years as thickly as ever.—C. A. S. [It is, doubtless, the seedlings that come up. Pursue the course which you have taken in the first instance, and you will ultimately succeed.]

Names of Plants.—M. T. 1. Hemerocallis graminea; 2. Francoa ramosa. F. St. A. Escallonia. J. H. N. Probably Calceola esculenta, a common plant in all the West Indian Islands. F. T.—1. Next week; 2. Hemerocallis graminea; 3. Potentilla atrosanguinea. T. B. A.—1. Apparently Campanula carpatia; 2. C. pusilla alba; 3. Viola cornuta. C. B. K.—1 and 2 varieties of Begonia Rex, others next week. R. J. R.—1. Brachysema lanceolata; 2. Boronia Drummondii; 3. apparently Eriostemon myoporoides. C.—Viola blanda. D. E.—It looks like the variety named Holyrood, but we cannot undertake to name florists' flowers, which should be submitted to some specialist. J. B. M.—Digitalis lutea, probably escaped from some garden.

Questions.

Imported Orchids.—Some time since I bought several lots of Orchids as imported, principally Celogynes and Cymbidiums. These are now making young growths, but do not seem to be pushing roots. Should they be potted when the shoots begin to grow, or should I wait until new roots show themselves? To any experienced Orchid grower who will answer this question I shall feel deeply indebted.—W. B.

Single Cordon Pears.—Will any experienced fruit grower kindly give his experience as to the most satisfactory way of training, or rather pruning, single cordon Pears? I have a wall planted entirely with Marie Louise, worked on a strong growing kind, probably Beurré de Aumalis on the Quince stock. They have been planted three years, are now about 4 ft. high, and making a robust growth, the shoots being from 12 in. to 16 in. in length. When is the best time to summer prune in order to produce fruit spurs? I tried two different periods last year but without diverse results. Rightly or wrongly, I have no faith in the finger and thumb business; I believe that only results in the production of a mass of weak unripened wood. The trees are trained vertically.—A. D.

Diseased Cedar of Lebanon.—Can any remedy be suggested to save a magnificent old Cedar of Lebanon Tree which is looking very unhealthy, and which shows no sign of growth. On examining its base a quantity of black, gummy substance was found oozing out; the bark underneath the soil appears dead and exhibits traces of fungus. One of the roots was examined and found to be quite decayed, the others have not been disturbed. Fresh soil has been from time to time spread over the roots; could this possibly have injured the tree?—CEDAR OF LEBANON.

Rhubarb.—Will some of your correspondents say what is the heaviest stalk of Rhubarb which they have gathered about this time of year?—M.

The New Forest.—Instead of submitting to the passing of an Act of Parliament such as that now brought before the Houses for the amendment of the Act of 1877, it is high time that the public became aroused to the necessity of taking immediate steps to secure a restoration to the state of those rights and privileges which were forfeited by that Act. The loss to the nation is incalculable, and the proposed amendment can only aggravate the situation by prolonging the period of injustice, and by deferring substantial legislation upon the much-vexed question of the rights of the commoners. In the prospect of the speedy establishment of a school of forestry in our own country, the 43,000 acres of land now devoted solely to the gratuitous benefit of the commoners might be made available for the training of a body of young men in the principles of draining, enclosing, trenching, planting, pruning, and future care of our principal forest trees. Her Majesty's Commissioners of Woods are fully alive to the importance of the object to be attained; but it is only by keeping the subject well before the public that the desired result can be arrived at. From the year 1788 down to the present time protests have been made by Commissioners, and it is to be hoped that the nation will no longer rest content with the mere patching up of Acts which in practice prove unworkable.—A. J. B.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

OUTDOOR GRAPE CULTURE IN ENGLAND.

IN the present depressed state of agriculture the prospects of Grape culture out-of-doors in some of the more favoured parts of the south as a commercial industry might be advantageously discussed. To all appearance, the culture of Grapes under glass for market purposes has seen its best days. The impulse which the trade received many years ago induced a few to embark in that business exclusively, and these early beginners had the ball at their feet for a time; but in a few short years there came a reaction. Numbers began to grow Grapes for the market, both in England and Scotland, and, owing to the increasing practice of growing late Grapes in private gardens, these establishments were not only better supplied than they had been before, thus reducing the demand, but in numbers of instances helped to glut the market. Then the Channel Islands, which had always contributed largely to the supply, began to pull up and send a better sample than they had done before, as well as an earlier supply, and, having a milder climate, they have been able hitherto to hold their own even against Continental competitors, and have seriously affected the home trade. The result now is that Grape growing at home has become a rather precarious speculation by itself, and those who began in the confident expectation of making rapid fortunes by the business have enough to do to make it pay; indeed, some noted cultivators have converted their Vineries to other purposes within the last few years. Another thing which has helped to reduce the price of Grapes is the more abundant importations of Pine-apples and Melons, &c. The St. Michael's Pines, coming in at a time when Grapes are dearest, have been extensively used as a substitute. The effect of these various causes has been a very great reduction as regards prices, as any one may see who looks over the market list now and ten or fifteen years ago. Depression of trade has no doubt, too, had its effect on the prices of fruit as on other things; but it is well known that during the prosperous years through which we have lately passed the tendency of prices has been downwards in the Grape market, and nowhere more conspicuously than in Covent Garden. In short, it may be doubted if any person of experience in Grape culture could now be found who would invest capital to any extent in the culture of Grapes for the market under glass.

At certain seasons in London and in the chief provincial towns Grapes of first-rate quality will always fetch fairly remunerative prices, but nothing more; it is, however, very seldom that any grower succeeds in producing good crops with any degree of constancy, and he therefore cannot calculate on such prices. At the present time, and for some months past, when Grapes are supposed to fetch the best prices, the amount offered to growers by buyers in Covent Garden has been very little. We have heard of some of the most noted cultivators parting with their crops at 2s. 6d. per lb. in May, a price which can barely pay working and other expenses in the production of early Grapes. Fine English Grapes have been plentiful in the provincial markets at 3s. of late—retail price; and they will continue to decline now till near the end of the year, during which interval Continental cultivators will provide the main supply. Under these circumstances, it is clear that unless something can be done to cheapen the production of home-grown Grapes, the market grower will soon be in very much the same position as the English farmer is at the present time. If, however, dessert Grapes can be ripened out-of-doors in England, their culture should cost little, if anything, more than it does in the north of France, near Paris, from whence all the Grapes that supply that city from August till November or longer come; and it remains for us to consider what the prospects of success are in this direction. For my own part I have a settled conviction, founded upon observation and experience, that outdoor Grape culture can be accomplished successfully; and it would be strange if the noted skill of English horticulturists was not equal to the task if they chose only to apply it in the right way.

Climate and Varieties.

About Fontainebleau and Thomery, where the Chasselas de Fontainebleau Grapes are grown, everything denotes a thriving industry and considerable wealth. The first question an Englishman acquainted with the culture of Grapes and the capabilities of his own climate, asks is, "Why cannot the same be accomplished in the south of England?" The only doubt ever entertained or expressed on this head, so far as I am aware, relates to the climate, which is said to be too cold; a

doubt which however is not entertained by those who have made the attempt on a small scale, or any who have had opportunities of estimating the matter aright. Crops would probably be a little later, but I do not doubt for a moment that if anyone having sufficient capital was to employ a skilled Vine grower from the north of France in some favourable locality in Kent or Surrey, or any southern county where the subsoil is dry, he would prove conclusively that the expectations of those who advocated the outdoor culture of Grapes in England are well founded. It has not now to be proved, indeed, that the Grape will ripen on the open wall in many parts of England, and that too with the utmost regularity—early varieties at least, like the Royal Muscadine (the Chasselas de Fontainebleau of the French), and a really excellent grape it is when ripened in the open air. There are, too, other varieties quite as early as the Royal Muscadine, but none of these possess so many good qualities as an early Grape. It is a vigorous grower, a sure bearer, and a good setter, three very important qualities, and it is also a good keeper after it is ripe. It is saying a good deal for this variety that it has held its own from time immemorial, and is still one of our favourite early white Grapes. These good points the Vine growers in the north of France have understood, and hence they have stuck with commendable persistence to the Royal Muscadine alone—at least the proportion of other sorts grown is very small. It is undoubtedly the Grape to be depended on in this country, wherever the culture of dessert Grapes is attempted. Aged Vines of it and plenty of young ones are to be found in England out-of-doors, as far north as the Midlands at least, and bearing with a degree of regularity that would surprise those who are accustomed to think that good Grapes cannot be produced in this country.

The experiment of growing Grapes for wine-making purposes at Cardiff, during a succession of exceptionally late seasons, and in one of the cloudiest parts of England, has proved that the Grape will ripen without even the protection of a wall, though it is not proposed here to attempt anything more than wall culture. In the south of England we have frequently seen very good samples of Muscadine grown on cottage fronts and in gardens. On the London, Chatham, and Dover line last year one small cottage covered on its sunny side with this Vine was particularly noticeable. The Vines had been trained in the most methodical fashion, evidently by a skilled hand, and bore a fine crop of bunches just about beginning to ripen at the end of the second week of August. Such examples show what can be done by culture, and examples of Vines growing and bearing almost uncared for are common enough in the southern counties. I am acquainted with one fine old Royal Muscadine Vine in front of a large farm house in Nottinghamshire, and about seventy years of age, that has not failed to bear and ripen large quantities of fruit every year for a long period, and it is at this time maturing a heavy crop. I saw and tasted the fruit from this Vine last autumn, and thought it excellent. It was quite as good as samples which I have seen from Fontainebleau. At Bury St. Edmunds, too, and at Woodstock, Mr. Derkin and Mr. Fenn respectively have, as is well known, grown fine Grapes out-of-doors. Indeed it has been proved without doubt that the Grape can be ripened successfully in many parts of the south of England; and its culture for market needs only to be tried on a large scale in order to demonstrate conclusively the capabilities of our climate in that respect.

Culture.

As to the practical culture of the Vine out-of-doors, that is a subject which has been more than once treated of in the pages of *THE GARDEN*. My object at present is to direct fresh attention to the subject of outdoor Grape culture against walls, and its practicability as a commercial undertaking. I would only point out that in making such an attempt, much would depend upon situation and soil; but in the fertile vales of Kent, Surrey, Hampshire, and elsewhere, no doubt these could be found in suitable conjunction in scores of places. As to original outlay that would not be serious. The heaviest item would be the Vine walls, which need not be high nor yet expensive, and a great extent of them may occupy a comparatively small piece of ground. In France the walls are not often more than 6 ft. or 8 ft. high, and are inexpensively constructed. Such low walls are approved of by some for the reason that they are more benefited by the radiated heat from the earth than they would be if they were higher. A higher wall would certainly afford more training space, but the advantage in this respect is not very apparent, as the higher the walls the farther they would need to be apart, in order to admit the sunshine to the Vines and borders behind, for in such Vineyards the walls run in parallel lines. Copings are required to throw off frosts and rain, but for low walls expensive glass copings would be superfluous. In France the frosts are more severe than with us, but common slates and tiles projecting about 1 ft. or less from the wall are found sufficient with the aid of coverings in spring and unremitting attention. In this country root treatment would be the most important affair,

as the timely ripening of the crops and the wood would greatly depend upon the character of the soil and its depth. Not that expensive or elaborately-prepared borders would be at all necessary, for the natural soil, enriched by manure in the usual way, would be quite good enough; and rich and deep borders, that find favour in cultivating the Grape under glass, would be out of the question. The object of the grower would be not to produce wonderful bunches, but good and regular crops of fruit that would find a ready market and appreciative customers. For an outside Vine border we believe, speaking from a pretty intimate knowledge of the habit of the Vine, that from 15 in. to 18 in. would be ample depth, and for manures we should be disposed to use bones and inorganic manures principally. The borders would have to be also thoroughly drained and laid with a decided slant to the sun; and if the whole Vineyard could be sheltered from the north and east by hills or woods at a distance it would be a great advantage.

Cost.

With regard to the general culture of the Vine out-of-doors and the cost of labour, the first would be found to be exceedingly simple and easily learned, and the second would be less serious and less arduous than the culture of not a few other garden and farm crops. Much of the work pertaining to Vine culture can be done as well if not better by women than men. What duties the latter are required for are training and pruning chiefly—duties which are mostly over by midsummer, as all pinching and thinning could be performed by women. It is well known that in private gardens Vines require the least attention on the average throughout the year of any crop in the garden. In some of the best Vineyards under glass in this country hardly more than a tithe of the strength that would be required to maintain a general nursery or garden of the same extent in good order is employed. A push has certainly to be made at the thinning season, which occupies a week or two, but after that the work principally consists in watering and attending to borders and pinching the laterals on the Vine shoots. In outdoor culture it must not be disguised, however, that much would depend upon the proper and diligent use of all means likely to promote success, and attention to those little points of culture in which the Continental gardeners excel us so much.

S. W.

DESSERT ORANGE CULTURE.

Few of the fruits given to man contribute so largely to satisfy the daily needs of humanity as the Orange; entire provinces of the fairest portions of the globe are devoted specially to the production of this inestimable fruit, and worthily. The extraordinary property of keeping both outwardly and inwardly all its excellent qualities is possessed by this fruit alone. The origin of the Orange appears to be lost in antiquity, and, as no specimen of a wilding in its original habitat has been discovered, it seems as if the fruit, like Minerva, had sprung into being perfect at all points. It is alike to be discovered in the mythology of Europe, and in the remote and fabulous antiquity of China, a very fine and fruitful specimen being figured in the "Willow pattern" plate.

In the time of John Evelyn dessert Oranges were evidently grown as a luxury, as he alludes to the fact that he plucked as good fruit from his own trees as he could wish. The "Orangerie" at Versailles achieved a lurid reputation in the earlier days of the trouble and confusion preceding the great Revolution; but the Orange trees of that time grown as ornaments in royal and princely gardens were the bitter variety known as Seville Oranges. An Orangerie, generally dark and dismal, was at one time as much an imperative appendage to a well-kept garden as the forcing house; but it is not easy to understand why it happened that few gardens possessed the dessert varieties, as they require no better climate or treatment than the bitter Oranges, and are equally liberal in producing both flowers and fruit.

It is well known that Orange trees cultivated in the usual way in France or England never give fruit at all eatable, solely from the lack of heat at their ripening period, late in autumn and winter. In Grenada (West Indies) they commence to ripen towards the end of October, in a temperature varying from 70° to 80° or thereabouts; their flavour there, freshly gathered from the trees, is so delicious that they are far superior to those we receive from St. Michael's and other places, all of which are gathered before they are ripe. In our tropical orchard house Oranges ripen in October, November, and December. How agreeable to be able to gather a portion of the Christmas dessert from one's own trees!

As an ornamental tree in the greenhouse and conservatory it is an old friend; and perhaps no tree in the known world has suffered, and does suffer, such vicissitudes, yet living and seeming to thrive under them. It glories in a tropical climate, and yet lives and grows after being poked into those cellar-like vaults used for its winter quarters

on the Continent; it gives flowers in abundance under such treatment, and would even give its fruit—albeit uneatable—if permitted. Nearly the same kind of cultivation has been followed for very many years in England; it has rarely had heat sufficient to keep the tree in full vigour; and its roots, in pots or tubs, must have suffered severely from having been placed out-of-doors in summer on our cool damp soil, and in winter on a stone floor still more cold.

Varieties of Orange.

In cultivating the Orange for its fruit, the first consideration is to procure some of the most desirable varieties, such as the delicious thin and smooth-rinded Oranges which we receive from St. Michael's, the Maltese Blood Orange, and the Tangierine. The Tangierine is of all Oranges the most desirable, as it is a most abundant bearer, and produces fruit of as fine a flavour in the orchard house as at Lisbon. It requires, however, different treatment from that of the usual orchard-house trees; for, although comparatively hardy, it must have the shelter of a greenhouse or conservatory during the year, so as to be protected from the summer's rains and the winter's frost.

There are two methods of cultivating this most charming fruit, the Tangierine Orange. The first and the most eligible is by forcing, so as to have the fruit ripe by October; if properly treated they will then be in the highest perfection, their skins bursting with their delicious juice. To carry out this mode of culture the trees should be removed to the Pinery or Vinery, where early Grapes are being forced, early in the month of January; the pots plunged in gentle heat in the high temperature of such houses. They will blossom towards the end of February, and should be treated as all other kinds of fruit trees are when in bloom—i.e., the pots and the lower branches may be syringed, but the blossoms kept dry. They will set large crops of fruit, which, if too much crowded, should be thinned. If possible, the pots should be kept plunged, or stand on a heated surface all the summer in the temperature of the Pinery or forcing Vinery; they will then ripen their fruit early in autumn, when Oranges are rare. The other method is to keep the trees in the greenhouse or conservatory all through the winter, and remove them to the orchard-house in May; they will blossom in May, and set their fruit, which will increase in size slowly all the summer, but not ripen till the following year, in June or July. The trees should be removed from the orchard-house to the greenhouse at the end of September. This is not so satisfactory a method of growing this very pretty and nice fruit as the former, but the trees in bloom and in fruit in May are most interesting objects in the orchard-house.

The houses best adapted for their cultivation are the large span-roofed, 24 ft. wide, 6 ft. high at each side, and 15 ft. high in the centre. A house of this size will require eight 4-in. hot-water pipes, four on each side, as artificial heat is required all the year to ripen Oranges in one season perfectly. A smaller span-roofed house, 5½ ft. high at each side, and 12 ft. high in the centre, heated by four 4-in. hot-water pipes, two on each side, is almost as eligible for Orange culture as one even of the larger size. A house of these dimensions, with a central path, and a border on each side planted with Orange trees, would form a pleasant and productive Orange garden; but to form an Orange grove, so as to have trees of fine growth, and to give abundant crops, the larger house must be resorted to.

A Tangierine Orange house is a pleasant addition to the fruit garden; the trees planted in a 14-ft. span-roofed house, the borders heated with hot-water pipes, and the air with hot-water pipes above the surface, would be both fruitful and beautiful at all seasons. Their habit is dwarf and yet graceful, from the smallness of their leaves. They seldom, even in the Orange gardens of Portugal, attain a greater height than from 5 ft. to 7 ft. This delicious little Orange is only eaten in perfection when fresh from the tree. In Lisbon it is sent to the dessert in clusters with leaves attached to them; unless these are quite fresh and green when the fruit is served, it is not reckoned in full flavour. If grown in the tropical orchard-house, the trees should be placed in the coolest part of it, and have abundance of air in mild weather in winter; they will then bloom later, and set their fruit with greater certainty.

The best form of tree for an Orange garden under glass is the round-headed, a form which it seems to take naturally; for if it is endeavoured to be cultivated as a pyramid, its lower branches soon become weakly and unhealthy. If trees with stems 2 ft. or 3 ft. in height are planted, the lower branches may be gradually removed till a clear stem of 5 ft. in height is formed, and this height will be found sufficient. They may be planted from 5 ft. to 6 ft. or 7 ft. apart, according to the size of the house, and the room which can be afforded for each tree. It must not be forgotten that in small houses the heads of the trees may be kept in a compact state by summer pinching, and in large houses be allowed a greater freedom of growth, so that the owner of an Orange garden in England may sit under the shade of his own Orange trees.

The St. Michael's Orange is well known for its thin rind and excellent flavour. A very superior sort, which I received direct from St. Michael's, seems to be a most prolific variety, for trees only 1 ft. in height are full of blossoms and fruit. The treatment recommended for the culture of the Tangerine Orange may be followed in cultivating this sort. Tangerine and St. Michael's Orange trees, planted in the borders of a large span-roofed house, furnished with enough of a heating apparatus to keep out frost, and the borders heated as before mentioned, will grow well and bear well; so that it is quite probable our markets will be supplied in the autumn with Tangerine Oranges freshly gathered from the trees, and full of the delicious aroma for which they are renowned.

There are several kinds of Oranges cultivated in the Azores besides that thin-rinded excellent sort known *par excellence* as the St. Michael's. The following kinds I have recently received, and give their descriptions: The Egg Orange, oval, very handsome and delicious; the Plata or Silver Orange, very delicious; the Long Orange, a remarkable sort, very fine and rich; some specimens of this, sent to the Royal Horticultural Society, received a special certificate. The White Orange, with striped fruit and white flesh, is a very pretty sort. Sustain, Dulcissima, Exquisite, are varieties evidently from seed of the ordinary St. Michael's, differing slightly in foliage and form of fruit. There are two varieties of the Maltese, the Blood and the Oval, which is bloodless; the latter is a well-flavoured and large fruit, but is not better than the St. Michael's. The former should be grown in every Orange house; it is very compact in growth, produces an abundant crop of flowers, and is delicious in flavour, although slightly repulsive in appearance when cut. When first introduced in the Orange house, some years since, these Oranges did not bear fruit so freely as the varieties from the Azores; but possibly the plants have become accustomed to the climate, and they are now quite as fertile as the other varieties. My trees thrive vigorously and ripen their fruit in a house which is heated gently, and kept moist by syringing twice a day. There are also some sweet Oranges cultivated in France, of which trees could be readily introduced; but the first-named varieties seem to me most worthy of the careful cultivation to be given them in the tropical orchard-house.

Soil for Oranges.

The soil for potting should consist of the following: three parts sandy loam, from the surface of some pasture or healthy common, chopped up with its turf, and used with its lumps of turf about the size of large Walnuts, and its fine mould the result of chopping, all mixed together, and one part rotten manure at least a year old. To a bushel of this compost add a quarter of a peck of silver sand or any coarse siliceous sand (calcareous sand and road sand are injurious); and the mixture will do for all the fruit trees of the tropical orchard-house as well as for Oranges. Ferruginous soils evidently suit the Orange better than those of a calcareous nature, and should be selected. The soil of some parts of Sussex is well adapted, and if the climate would permit this county would be our large Orange grove. In some of the Orange plantations of Italy the soil is annually manured with old rags, which are found to contain a good deal of oil; I think, therefore, that cotton oil-cake, sold by manure merchants, will prove an excellent addition to the potting material; add also a few lumps of charcoal. In potting the Orange it is better to commence with a pot too small rather than too large, for, unlike the Peach or the Plum, it does not feed rapidly and at once fill the pots with roots. Thus a tree two or three years old may be potted in a 9-in. pot, suffered to remain for two years, and then removed to a 13-in. pot, in which it may remain (unless the house be very large and a large tree be wished for) six, seven, or ten years. A portion of the surface-soil should be annually removed in December, but not deeper than from 1 in. to 2 in., and the pots filled up with the above compost; and about the beginning of March a surface-dressing composed of horse droppings from the roads two-thirds, and one-third of kiln-dust thrown into a bed 1 ft. deep, and saturated with strong liquid manure from the cesspool, should be given. The French cultivators strew fresh sheep's manure on the surface; they also place their trees in a pure peat earth. Two other surface-dressings of the compost should be given—one in June, the other in the beginning of September. The trees will, of course, be placed on the hotbed, or plunged slightly 2 in. or 3 in. into the mould. I am not, however, an advocate for plunging to any extent, unless very rapid growth be required, for I find that trees in pots, standing on a bed of heated mould and rooting into it, make a healthier although a slower growth.

Treatment after the Fruit is Gathered.

As soon as the fruit is gathered, which ought to be by the end of February,* when foreign Oranges commence to be good, the trees

* I have departed from this rule by allowing fruits of the Maltese and St. Michael's to remain on the trees till June this present year (1865); they were then perfectly delicious.

should be lifted, and any roots that have made their way through the bottom of the pots should be cut off and surface-dressing given. Orange trees cultivated in the tropical orchard-house should have a part of the house to themselves, divided by a light glass partition, as they require and will bear more ventilation than other tropical fruit-bearing trees. Thus both borders of a small span-roofed house should be appropriated to them, the other part of the house being occupied with mixed trees and shrubs. Air can then be given to them by opening the sashes on one or both sides without interfering with trees and shrubs requiring less ventilation.

Orange trees, when grown constantly under glass, are liable to a black fungus on the upper surface of the leaves; this can only be removed with a sponge and warm water. They should be syringed with soft tepid water twice a day (at 9 a.m. and 5 p.m.) during the summer, and once a day in the morning, in sunny weather, in early spring and autumn; while the fruit is ripening in the winter, syringing should be discontinued. It is the custom to cultivate Orange trees in square boxes made of Oak. I am inclined, however, to recommend pots perforated at bottom, as usual with other pots. Slate pots are very neat and even ornamental; with three perforations they would doubtless answer very well. If wooden boxes be used, they should have bars at the bottom, to allow the roots to make their way into the hotbed and for drainage.

How to Form an Orange Grove.

There appears to be something bordering on romance when one talks of an Orange grove in England, and thinks of those unfruitful trees in tubs so common and so ugly; yet it is quite feasible. One day, ere long, Orange groves under glass, giving fruit, and flowers, and a perfume more agreeable than the dusty surface of the ground under a plantation of Orange trees in the countries where they are cultivated for their fruit, will be common enough in England when the method of making one is pointed out. There are two modes of forming a plantation of Orange trees under glass; one is simply to keep the temperature in winter from sinking below 30°; this may be done by having, in a large span-roofed house 24 ft. wide, five 4-in. hot-water pipes all round the house. In a house of this size, and thus heated, a central path 4 ft. wide or more should be formed, and the border on each side planted with Tangerine, St. Michael's, and any other kind of Orange that is not too robust and vigorous in its habit. Citrons, Lemons, and Shaddocks should not be mixed with Oranges in planting, but have a portion of the house devoted to them, or they will soon shade the more humble-growing kinds. Tangerine, St. Michael's, or other kinds of Oranges of moderate growth, may be planted about 5 ft. apart, and the borders in which they are planted, if not loamy or clayey, but light and sandy (for the Orange likes a stiff soil when growing *au naturel*), should have a dressing of stiff yellowish loam and rotten manure—two-thirds of the former to one of the latter, and 6 in. thick; this should be forked over and mixed with the soil to 18 in. in depth, and you will then have a border in which Orange trees will grow freely and bear abundantly.

A large span-roofed house, 100 ft. long and 24 ft. wide, would form a grove large enough for a most enjoyable promenade. There is another mode of forming an Orange grove under glass, more expensive and luxurious, by adopting "geothermal culture," and heating the borders as well as the air of the house. A house 24 ft. wide under this system would require four 4-in. hot-water pipes under each border (with rubble 4 in. deep over them), placed about 2 ft. under the surface, with a path in the centre of the house 5 ft. wide; each border may be from 9 ft. to 10 ft. wide; the pipes about 2 ft. apart. Besides these, there must be four 4-in. hot-water pipes to heat the air of the house in the ripening season. In a house thus heated those delicious (when first gathered) Maltese Blood Oranges may be grown, and the Pernambuco and other tropical varieties of the genus *Citrus*. Tangerine and St. Michael's Orange trees planted in these warm borders would ripen their fruit very early, and it would be sugary and rich.

I need scarcely add that an Orange grove may be formed in a small span-roofed house 14 ft. wide, with a path in the centre; and since writing the above directions for heating the borders, I have come to the conclusion that if the borders be raised 18 in. above the surface of the floor, either in the small or large houses, the heated air of the house will penetrate the soil so as to keep the trees in health and ripen their fruit.

There seems, indeed, no end to what can be done by Englishmen with the aid of artificial heat and glass. What a beautiful Vineyard under glass could be formed by such heated borders as I have described above! and how charming "to make a promenade," as our neighbours say, in such a place! No one but an enthusiast in gardening can imagine the pure quiet pleasure of taking a morning walk in the Orange-house, full of aromatic flowers and fruit, during the dreary months of December and until the end of March, and

plucking from the trees Oranges fully ripe. I have had much experience in the culture, and I may add in the eating, of fruit, and I can say with a firm conviction that I never enjoyed any kinds of fruit so much as I have Oranges of my own plucking in winter. The beauty and interest attached to an Orange-house, when the trees are kept in fine health, I can testify to in all sincerity. My house is an unfailing source of pleasure. A large house—a real Orange grove—would be a realisation of the gardens of the Hesperides. The trees ever green, almost ever blooming, seem to be an ever-giving source of delight to a mind alive to the beauties of Nature!

Insects.

The insects which infest Orange trees are two varieties of scale, and also the green aphid; the former are easily destroyed by methyated spirits of wine, applied with a painter's brush, and the latter by Quassia water—4 oz. of Quassia chips boiled ten minutes in a gallon of water. This is also an excellent preventive to scale, if the Orange trees be syringed with it once a week; it should be allowed to settle and be perfectly clear. If the leaves become black or dirty they should be sponged with warm water. Painting the stems with paraffin is certain destruction to scale, but care must be taken that it is applied only to the hard wood; the oil will injure young and tender shoots.

Pruning.

With regard to pruning fruit-bearing Orange trees very little is required. The shoots that are vigorous, and diverge from the round heads of the trees, should be shortened in summer by pinching them to half their length; and in winter, if the heads of the trees are too much crowded with small shoots, they should be thinned with a sharp knife.—RIVERS' "Orchard-house."

THE FRUIT CROPS IN KENT.

Mid-Kent.—It is feared that the fruit crop at Maidstone this year will be most unsatisfactory. Cherries will be thinner than they have been for some years; in fact, with few exceptions they are a complete failure. Pears and Plums are an irregular crop; the Plum trees generally are full of insects. Apples are also very uneven, though some kinds at present in places have a fair show. However, if the weather does not alter, and the nights become warmer, they will not hang. Gooseberries upon the whole are plentiful, though short at places. Black Currants in some parts are very uneven, and where there is a chance of a crop they are mostly covered with honeydew, and probably much of the fruit will drop. Red Currants promise well. Raspberries and Strawberries blossomed well, and with warm dry weather will be likely to grow a fair crop and pay well. Filberts and Cobs are plentiful at present, but it is too early to predict anything about the crop. In the parishes on the south side of Maidstone Gooseberries and Currants are under the average. Cherries quite a failure. Damsons bid fairly well. There are a few Morocco, Diamond, and Bush Plums, but very few of other sorts. Apples will be very few. Pears—best nearly a failure, common ones a fair crop. Nuts also bid fairly well, but it is too soon to give a decided report. West of Maidstone the fruit crop prospects are by no means satisfactory. Though there was a great show of blossom on all kinds of fruit trees but comparatively little of it "set" for fruit, and lately many of the just developed fruits have fallen off. Cherries will be scarce, notably the early sorts. Here and there, however, there are some Bigarreau trees that look like bearing a fair crop. Apples will be short. Caterpillars are busy among the leaves, and the small Apples are fast falling off. Damson trees, usually prolific, will give a poor return. The leaves of these are much blighted. Gooseberries are an indifferent crop; Warringtons will be very scarce; Lancashire Lads have borne the trials of the spring much better. Raspberries bid fair to be abundant. Of Currants, though there was a promise of a very large yield, it must be said that many of the black sorts have fallen off and are falling now, while the leaves of the bushes are in some cases shrivelled and blighted. The Red and White kinds look far more healthy, and will, it is thought, yield a plentiful supply of fruit. Cob and Filbert trees bloomed well, and the blossom set, but caterpillars have done considerable harm, so that this crop will not be so large as the growers had expected. Like the Hop plants, Beech, Lime, and other trees, many of the fruit trees are infested with various species of aphides. In the parishes of Boughton Monchelsea and Langley not only is there an absence of fruit, but the foliage generally has an unhealthy appearance, and there is a quantity of vermin. Cherries are very short. Apples below an average, and some kinds have almost entirely failed. Plums, with the exception of a few kinds, are short. Gooseberries good in the immediate neighbourhood, but bad in some parts. Nuts apparently good. In the Chatham district the fruit crop is exceedingly partial, but generally it is below a full average one. Apples promise a fair crop, and the

same may be said of Pears. Gooseberries are below the average, and a full crop is not expected. Cherries are only about half an average crop. Plums show a fair yield. In the district immediately surrounding the city of Rochester the fruit crop may be described as very patchy, with no prospects of anything like a large yield. At Southfleet and its district the fruit plantations show a large yield of Strawberries, although they are very backward. Raspberries also are a fair crop. Cherries are below an average. Plums and Pears are a good crop, and the same remarks apply to Apples. Gardeners in the Tunbridge district do not give a very good account of their grounds, neither Cherries, Gooseberries, nor Currants being plentiful. Apples have a tolerably good show, but high winds have cut the trees about very much, especially those in exposed situations. In several gardens the Cherry, Peach, and Plum trees are swarming with vermin.

West and Weald of Kent.—Taking the northern part of this district—viz., from Halstead towards London and Dartford, we get the following accounts:—Strawberries are a very heavy crop. Raspberries look well and bid fair for a good crop. Black Currants are only a moderate crop, but Red Currants are good. Gooseberries are rather an indifferent crop, the frosts having considerably affected them. This also applies to Cherries. In some places the growth of Apples, Damsons, and Plums will only be moderate, a fair yield being the exception. The crop of Filberts and Cobs too will be only moderate. The fruit crop in Cranbrook district will be in the aggregate by no means a luxuriant one so far as regards quantity. Cherries and Pears bloomed fully, and some sorts set well for fruit, but recently the trees generally have thrown out long shoots, and the fruit has fallen in large quantities. Apples, perhaps, will be a tolerable yield if all now goes on well, but the crop will be a patchy one. The same remark applies to Damsons and Plums; at places there are signs of a somewhat prolific yield, while at other places it is difficult to find more than a very few. The crop, however, will not be altogether unsatisfactory if the young fruit now on the trees should all grow and ripen. Strawberries are a great crop but injured by wet. Raspberries promise a bountiful supply. Currants and Gooseberries will be but a moderate yield.

East Kent.—Cherries excepted, fruit-growing is not so gigantically speculative in East Kent as in the western division of the county; but perhaps a failure is more widely felt, as most small occupiers and cottagers cultivate on a limited scale. Through a fine tract of land, extending from Greenstreet to Rainham, are to be found more Cherry orchards than, probably, in any other part of England; and there are several growers of this description of fruit whose average income from that source alone amounts to from £1000 to £1200 per annum. A uniformly heavy crop is not desirable, as it creates a "glut" in the market, and only low prices are at such times realised. These are not remunerative, owing to the cost of gathering the fruit and carriage to the markets of the metropolis. Indeed, it was but a few years ago that many growers were brought into debt by their salesmen on account of some of their consignments of Cherries not realising sufficient to meet the charges of carriage and commission. A few weeks since the appearance of the trees betokened another such minor calamity this season; but a marvellous change has "come o'er the spirit of the dream," and the crop of Cherries in East Kent will be very short this year. Plums have fared somewhat better. Apples promised a good yield. Pears are almost a total failure. In the neighbourhood of Ashford Apple trees promise well, and the same remark applies even more fully to Plums; but Pears are scanty, and Cherries very deficient. Gooseberries and Currants are an average crop. In the vicinity of Smarden and Bethersden the orchards look very badly; the Apple and Pear trees have an unkindly appearance; there will be but little fruit, and that very inferior. Cherries are nearly a failure. In Faversham and district the crop varies a good deal. Cherries are decidedly short. Here and there may be found a fortunate orchard, but generally the crop is light. Gooseberries are plentiful, Red Currants heavy, and Black Currants a fair crop. There was never a better show of Strawberry bloom, and Raspberries are also good, while wall fruit of all kinds is very scarce. The reports from Sittingbourne, which is the centre of an extensive fruit-growing district, are very unfavourable, and it is clear that the ingathering will not only be a late one but also a very small one. In many orchards, and among them some of the most celebrated Cherry plantations in the district, there are numbers of trees in which a ladder will not be placed. In one or two exceptional cases, however, the trees are well loaded with fruit. The crop of Apples and Pears will also be very short, and the way in which Plums are running off now makes it extremely improbable that there will be half an average crop. The only bright side to the picture is that there is likely to be quite an average crop of under fruit—Currants and Gooseberries.

Isle of Thanet.—The hopes raised by the abundance of blossom on our trees will not be realised, as the cold nights and ungenial days which have so long prevailed have not been favourable to the maturing of the fruit. There is a fair crop of Gooseberries and Cur-

rants, and Strawberries and Raspberries are plentiful. There is a spare crop of Apples, and but very few of the choice sorts of Pears; the hardy sorts hang well. Apricots and Peaches seem to be going out of cultivation as out-door wall fruit, Thanet soil or atmosphere not suiting them, and Plums of choice kinds are replacing them. Cherries, Plums, and other stone fruits will be scarce in the island.—*South-Eastern Gazette.*

THE INDOOR GARDEN.

THE ZEBRA-STRIPED COLAX.

(COLAX JUGOSUS.)

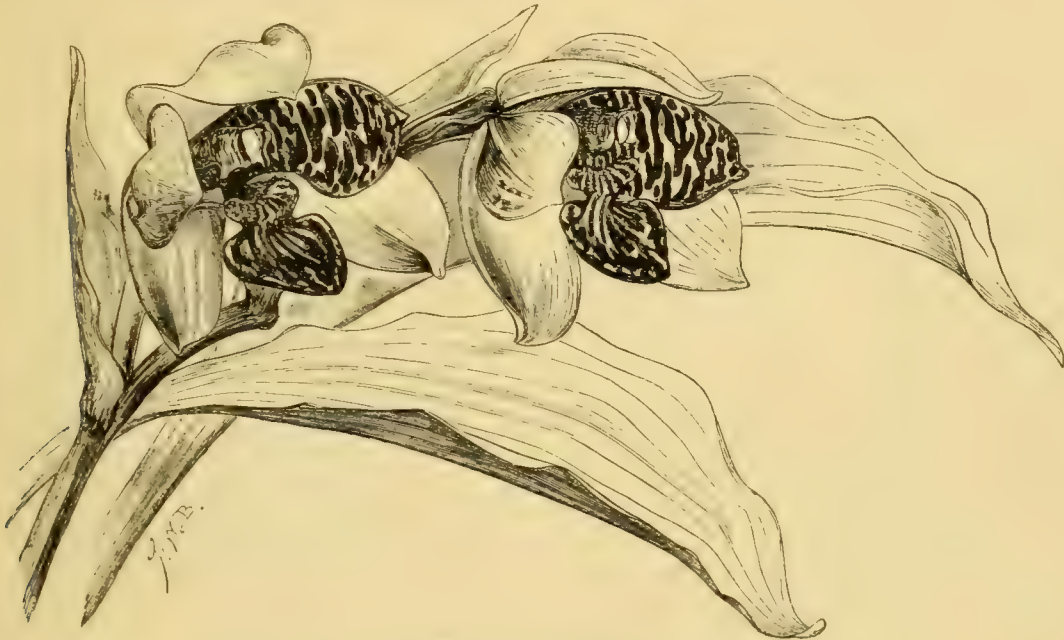
At one of the meetings of the Royal Horticultural Society ten years ago I first made the acquaintance of a distinct and beautiful Orchid as a "buttonhole" flower. It was at a time when Orchids were in a manner new to me, and yet I knew enough of them to note the appearance of what was then a comparative stranger among them. I was so interested in a flower of such waxy purity as that under notice, relieved by rich purple velvet-like bars on its petals, that I timidly approached its owner and ventured to ask its name. "Colax

with charcoal nodules in lieu of crocks. When I state that the plant is even now "comparatively rare" I mean to say that although it may be seen in nearly all collections of cultivated Orchids, yet the flowers are so distinctly lovely that half-a-dozen specimens should be found where only one is now grown. The flowers are produced from January to May, and I should be really afraid to say how long they will keep fresh and beautiful if placed in a "specimen glass" after being cut, and they retain their beauty several weeks if left on the plant in the usual way. In common with one or two species of Phalenopsids and other Orchids, the sepals and petals of Colax are persistent, changing to a green colour after fertilisation has been effected. Our sketch was made from a fine variety which recently flowered in Messrs. Veitch's collection at Chelsea.

F. W. B.

FILMY FERNS.*

THE principal genera which the group known as Filmy Ferns comprises are Hymenophyllum, Trichomanes, and Leptopteris, or Todea. The two former are very much alike both in habit of growth and delicacy of texture. Leptopteris is quite distinct, belonging to another tribe, the Osmundaceæ. Filmy Ferns have a very wide geo-



The Zebra-striped Colax

jugosus," said he, with a smile, "but what do you know about Orchids?" "Very little," I replied, "but I am fond of seeing them." "All right, my lad," was his encouraging answer, as he handed me his card; "then come to Wandsworth and see my collection there." I need scarcely add that the speaker was the late Mr. Sigismund Rucker, one of the most zealous of amateur Orchidists. Colax jugosus is even now comparatively rare, although from its unique character it deserves a place in all good gardens where intermediate or comparatively cool Orchids are grown. It attains 1 ft. or more in height, its green-nerved leaves being borne in pairs on smooth oblong pseudo-bulbs, from the base of which sheathing leaves and the two to three flowered spike are also produced. Lindley describes the flowers as "white, speckled with crimson," but the plants of it which I have seen in flower have invariably been of waxy whiteness, the petals and trowel-shaped lip barred or spotted with rich purplish-blue, and although its nearest allies are said to be the Maxillarias, it has many of the general characteristics of a Zygopetalum. It may be grown either in pots or in baskets, but perhaps pot culture has most points in its favour. The drainage must be good, for it cannot endure stagnation at the root. Chopped Sphagnum, peat and charcoal in nodules form a good compost for it, but the strongest plant I ever saw was grown in Sphagnum Moss and loam fibre, i.e. meadow or turfy loam, from which much of the earthy particles had been sifted—the pot itself having been drained

graphical distribution, being found in favourable positions nearly all over the globe. As an example of the wide range which these plants occupy, let us take the so-called Killarney Fern. The habitats given for it are in Europe, Ireland, Wales, and Spain; in Africa, Canaries, Madeira, Island of St. Thomas, Fernando Po, Angola, and Johannah Island; in Asia, Japan, Northern Hindostan, and Polynesian Islands; and in America from Alabama, Mexico, and the West Indian Islands, southward to Rio Janeiro. The majority of them, however, come from South America and New Zealand.

There are about 150 species of Hymenophyllum and Trichomanes, nearly equally divided into two halves; but I doubt if more than a third of this number are in cultivation at present. There are five species of Leptopteris or Todea known, all of which are in cultivation, their distribution being confined to New Zealand and Australia, and the islands of the Pacific Ocean. Three species only are found in Britain, viz., Hymenophyllum tunbridgense, H. unilaterale or Wilsoni, and Trichomanes radicans; they are, however, very rare, being found in a few special localities. Filmy Ferns differ from all others by the extremely delicate, and, in general, thin pellucid texture of their fronds. When in healthy condition they are the most elegant of Ferns. They love shade and moisture, many being epi-

* Read at the July meeting of the Scottish Horticultural Association by Mr. Robert Lindsay, Royal Botanic Garden, Edinburgh.

phytal and clothing trees, like Moss, or growing in shady ravines and caves.

With regard to their cultivation, with which we are principally concerned, they have somehow got the discredit of being very difficult to manage, a character which they do not by any means deserve. They are as easily grown as any other class of Ferns, provided some little attention is paid to the peculiar nature of the plants. The first and main point to be attended to in their cultivation, and without which it is useless to attempt to grow them, is to select a place where the atmosphere can be maintained almost at saturation point. This may be attained, in a measure, by means of a Wardian case, or even a bell-glass, a close-fitting frame inside a greenhouse, or, better still, if the means were at command, a small house for themselves. My idea of the kind of house required for these Ferns is a lean-to house, well sunk below the level of the ground, between 20 ft. and 30 ft. long by 8 ft. or 9 ft. wide, with a southern aspect, unheated, and with just sufficient head-room to stand in, the different kinds of Filmy Ferns being planted out on sloping banks amongst rockwork. Having got the right situation the rest is easily accomplished. The next important thing to attend to is shading; they all require to be heavily shaded from bright sunshine. Neglect of this for any length of time would, of course, be fatal to these Ferns. Still I would prefer some kind of shading that might be removed in very dull weather, and not a permanent shade, as they do not require to be grown in darkness, as is often imagined. The soil, whether they are grown in pots or planted out, should be of a free, porous nature. It should consist of good fibrous sandy peat, with lumps of sandstone and charcoal mixed freely through it, unless for *Todeas*, which will be greatly benefited by adding some good rich loam. Thorough drainage is most essential, as nothing hurts them more than over-doses of water. Although they require to be always moist, still it is not by drenching them with water that this should be effected. If they are in proper quarters a slight sprinkling daily will be the most that they will need. They should be potted moderately firm, as firm nearly as the rough nature of the soil will admit of, taking care not to injure the delicate rhizomes. While they grow very well in pots, the most natural way is to plant them out where they will have room to run and form large masses, which the stronger-growing kinds, like *Trichomanes radicans*, *Hymenophyllum demissum*, &c., would soon do. Several of the smaller-growing species, such as *Trichomanes trichodeum*, *T. angustatum*, *Hymenophyllum tunbridgeense*, &c., do very well on blocks of wood, but this is only a matter of convenience or taste. As mentioned before, the great thing is to get the proper situation for them.

Almost the only one of the Filmy Ferns which has received that attention which from its great beauty it deserves, is the *Todea superba*, which is frequently seen in good condition and always much admired, and yet many of the species and varieties of *Trichomanes* and *Hymenophyllum* are equally fine and quite as easily grown. The great objection to their cultivation is one which cannot be altogether avoided—that is, they must be grown in shady nooks and corners where they cannot be well seen, but this would be entirely obviated by having a house for themselves.

With regard to their propagation, *Hymenophyllum* and *Trichomanes* may be increased by division. During spring they may be split up into little pieces and potted, without the slightest danger of losing a single bit, if carefully done. So far as I am aware the only Filmy Ferns that have been raised from spores are the *Todeas*, and it is well that they do so, as this section only forms single crowns, or very rarely more than one, so that they could not be increased otherwise. I have repeatedly tried to raise the different species of *Todeas* by sowing the spores in the ordinary way, and also by laying whole fronds down in flats prepared for them, but have as yet failed to raise a single plant; but if left alone they will sow themselves, and come up in thousands, covering the surfaces of the pots and walls with their peculiar glistening prothallia. *Todeas* are the only Filmy Ferns I have noticed come up in this way, although we frequently find different species of *Trichomanes* and *Hymenophyllum* with apparently fertile spores. But why do they not germinate? It has often struck me with regard to other plants that where we have plants which reproduce themselves naturally by suckers, runners, or in any other way, the fertility of their seed becomes diminished in proportion. Whether this is the right explanation as to why *Trichomanes* and *Hymenophyllum*, which run, forming many crowns, and in a measure propagate themselves, do not germinate from spores, while *Todea*, which has not that power, germinates so freely, I do not know, but it appears to me to be not unlikely.

A good many of the species of Filmy Ferns may be grown very successfully in rooms, either under bell-glasses or in Wardian cases. They are very well adapted for that purpose; the close confinement, which weakens and kills so many of the ordinary Ferns, seems to suit them admirably. I have seen them keep in good condition for years in a room, where the only attention given was merely that of

sprinkling the fronds with water once or twice a week. With regard to their hardiness, it is surprising the amount of cold they are able to bear. Although coming from warm climates, still we must bear in mind that it is only in heavily shaded woods, or on clefts of rocks at considerable elevations—which tend to lower the temperature of the localities—where they are found to a very great extent. From the nature of the fronds it is almost impossible that they could exist in a very hot climate. There may be a few which require some heat, but the majority will live and thrive better without the aid of fire-heat. In the spring of last year we had occasion, for want of room, to remove a number of Filmy Ferns. They were put into a small frame outside at the north side of a hedge, and all the protection they had otherwise was a single mat left on them, more to protect them from sun than from frost. They stood there all last winter, although frozen completely through for at least two months, and were very little the worse for it. The kinds put out into the frame were *Trichomanes radicans*, *reniforme*, *pyxidiferum*, and *angustatum*; *Hymenophyllum demissum*, *crispum*, *Wilsoni*, and *tunbridgeense*; *Todea superba*, *hymenophylloides*, and *Fraseri*. Only two out of this number were much injured, viz., *Trichomanes pyxidiferum* and *T. angustatum*. Notwithstanding this, the temperature ought always to be maintained rather above than below freezing point, covering with mats or such material being preferred to fire-heat. Air must be admitted but sparingly, indeed they will seldom require it at all unless during very dull weather. These are the principal points which must be attended to, but there are many little things, such as constant attention to cleanliness, and others which will readily suggest themselves to all who may attempt their cultivation, and which should by no means be neglected, as, however trifling they may appear, it is frequently by constant attention to little things that the successful cultivation of many of our plants to a great extent depends.

INDOOR PLANTS AT GUNNERSBURY HOUSE.

THE unique specimens of these that have been shown from Gunnersbury at the various exhibitions during the season afford ample proof that a skilful and unusual system of culture must be pursued in order to bring about such results. The houses consist of a lean-to range with the central portion raised for growing large plants. In the first compartment are grand specimens of *Crotons* comprising *C. Hookeri* of a size rarely met with and highly coloured; also *C. variegatum*, *pictum* forming huge masses several feet through. The largest plant which we have yet seen of *Alocasia Lowi* was growing here; it had leaves measuring 27 in. by 14 in. Handsome plants of *Cycas circinalis*, *Verschaffeltia splendida*, &c., were also growing here in vigorous health. A noteworthy fact is that no trace of any insect pest was visible, though the house was filled to overflowing with plants of all kinds in addition to a large plant of *Stephanotis floribunda* trained on the roof. Another point observable is that bottom-heat is applied to the roots, but the pots are merely placed on stages, which raise the plants as near the light as possible, a point of great importance in the case of plants of this class. In an adjoining house was the finest batch of *Gloxinias* which we have seen for some time. The strain was superb, and the plants of unusual size, and a noteworthy fact is that they had been grown only in a greenhouse temperature, and when thus treated their value as decorative plants is much enhanced. Overhead were healthy Vines, affording thus proof that decorative plants and Grapes may be grown in the same house.

In the next house was a fine panful of *Davallia bullata* trained on a flat trellis, measuring fully 5 ft. across, and every frond as green as possible. Here were also fine examples of *Gymnogramma Wettenthaliana*, *Calomelanos*, and *peruviana*, *Gleichenia flabellata* and *dichotoma* (which is reputed to be difficult to manage), and *Adiantum Farleyense* 4 ft. across; also the delicate *A. gracillimum*, which is extremely elegant when seen in such a large mass. The larger plants, such as *Areca lutescens*, *Cycas revoluta*, *Dicksonia antarctica*, and others, are grown in the central division, which allows of their full development.

Another house in another part of the garden revealed other examples of high-class culture, such as *Davallia Mooreana*, *Maranta rosea picta*, several kinds of *Coleus* nearly 3 ft. high and as much through, and a host of other plants in a smaller state. A single plant of *Harrison's Musk* measuring 3 ft. across shows what may be done even with plants of that kind. W. G.

Sarracenia flava as a Window Plant.—This would be an excellent plant to grow in a sunny window planted in a pan of loam, peat, and Sphagnum Moss, and covered with a tall bell glass.

I bought some imported rhizomes in April; they were planted out in the corner of a cold frame without any other protection and have made pitchers 1 ft. high, and this under full exposure to sun, rain, and wind. Plants that had previously been cultivated in a heated greenhouse would not have borne this rude system of culture; hence I recommend imported rhizomes which grow up freely, and the pitchers are then all equally fresh and bright in colour.—B.

POLYSTICHUM ARISTATUM VARIEGATUM.

AMONGST the more recent additions to our temperate house Ferns few can equal in decorative merit the one of which the accompanying is an illustration. It is a distinctly variegated form of *Lastrea aristata*, or to speak more correctly *Polystichum aristatum* (the latter being the oldest name, and the one under which it is found in most collections). In general appearance this species resembles an *Adiantum* of the *tetraphyllum* class; its fronds, which are somewhat triangular in outline, are from 12 in. to 18 in. long, and droop as regards the upper half. They have from two to four alternate pairs



Polystichum aristatum variegatum.

of pinnae, and a terminal one which is much the largest. The segments, which resemble small Holly leaves with awned teeth, are inserted with great regularity, and gradually diminish in size towards the points of the pinnae. The most striking feature of the plant, however, is the streak of yellow which runs down the centre of each pinna, occupying the inner half of each segment, and forming a fine contrast with the dark glossy green of the outer portion. It is a native of Japan, and is therefore well suited for conservatory decoration, or for planting out in a cool Fernery; it is also one of the few Ferns that are adapted by their coriaceous texture to withstand the dry atmosphere of dwelling rooms.

Polystichums of this class should be potted in a mixture of two parts light loam and two of sandy peat, and they also require to be rather firmer potted than most Ferns. Those with creeping rhizomes being surface-rooting do best in shallow pans, similar to the one here shown. They may be propagated freely from spores, the young plants from which make their appearance in from three to six months after the spores are sown; they may also be increased by division of the rhizomes. This section of the genus contains many plants remarkable for their bold and graceful habit, and also for the firm texture of their foliage. The following are the most desirable, viz.—

P. amabile.—A noble plant more erect in habit than *P. aristatum*, with fewer and larger segments; it attains the height of 3 ft. or 4 ft., and is a fine subject either for pot culture or for isolation in some prominent position in the temperate Fernery. It is a native of North India, Japan, and Formosa,

P. conifolium.—This is said to be an arborescent form of *P. aristatum*, but it is abundantly distinct. Its fronds are triangular in outline, and copiously cut into minute segments; their texture is very coriaceous, and they retain their freshness several days after being cut. It is a native of Sikkim Himalaya, and is rare in gardens.

P. capense.—A well-known Fern which, though frequently met with under the name of *P. coriaceum*, is one of the stoutest of the genus, and one which seems to thrive best on an elevated mound of turfy peat and loam, in which its rhizomes can creep freely near the surface. It is a native of tropical America, the Cape, and Australia; and though it flourishes in a stove temperature, it is equally at home in the conservatory or cool Fernery, where the temperature does not fall during the winter months below 35°.

P. flexum.—This species has a wide creeping rhizome similar to that of *P. capense*, to which it is closely allied; but the fronds are cut up into much finer segments, resembling those of some of the *Davallias*. It is of free growth, and makes an attractive cool-house plant. It is a native of Juan Fernandez.

P. laserpitiiifolium.—This is also known as *Lastrea Standishi* in gardens, and in character is quite different from all the preceding; as regards cutting of the segments it is one of the most elegant of the genus, the fronds are also of a bright light green, and spread horizontally. It is a native of Japan, and has proved quite hardy in this country.

C. M:

TREATMENT OF ODONTOGLOSSUMS.

THESE plants are becoming popular with everybody, and it is generally recommended to keep them moist all the year round, and some even say they should be kept in a continually saturated condition when growing. That *Odontoglossums* have hitherto been grown fairly well by such treatment there can be no doubt; but the habit of the plant, and some knowledge of the experience of others in their culture, not to mention my own, suggests the inquiry whether such treatment is right. First of all, it would be very desirable to know under what conditions the plants thrive naturally. Do they grow in a spongy mass of sphagnum or peat, or on rocks, or on the ground, or on trees, or how? Is the atmosphere of the climate where the most of the species come from as dark and dull during summer as a glass house in England covered with a sheet, and is the summer temperature never above 60° or 65°—figures which I see recommended only last week in a contemporary? If that be so, then I venture to think that the climate of the North of Scotland must be too hot for them in ordinarily favourable summers, and that the South of England must be simply unendurable. In the article referred to it is stated that at one fine place, where *Odontoglossums* are well grown, the above temperature is never exceeded, if it can be kept down by the aid of shade and water. This being so, why not place the plants out of doors altogether, from spring till autumn at least? Putting aside the present season, the outdoor temperature is seldom under 60° during summer, and often much above it, and it therefore follows that the open air must be the best place for them. I have sought information on the above points from books and other sources, but cannot get it. On no subject are collectors more reticent than on that of the conditions under which the plants which they send home exist, and the consequence is great mortality amongst them. I hear that some tracts have been almost completely denuded of certain popular species of Orchids, which are likely by-and-by to become extinct in consequence.

As to treatment, it has always seemed, too, inexplicable to me why *Odontoglossums* should be an exception to all other species of Orchids that produce pseudo-bulbs, and which are generally subjected to a distinct period of rest, during which water is either partially or altogether withheld. In the case of the *Odontoglossum* one would think that it might be subjected to such treatment more safely than other species, because, while it has its plump bulbs to draw upon for nourishment, it is, moreover, treated at the resting period to an exceptionally low temperature, in which evaporation is reduced to a minimum. That the bulbs do afford nourishment to the plant under such circumstances is proved conclusively by the fact that imported plants stand a very trying drying process before being shipped, and afterwards grow. The bulbs shrivel much, but they fill up again when potted and placed in a growing temperature. It is true that when subjected to moist treatment all the year round the plants continue to grow constantly, some varieties, like *O. cirrhosum*, making two sets of bulbs in the season, and flowering as often, but it may be doubted if this is the habit of the plant under natural conditions.

Another reason why I am disposed to think we do not understand the treatment of this highly popular class of plants fully is the fact that it does not appear to suit one, at least, of the best of the genus, viz., *O. vexillarium*. It is well known, and nowhere better than in the trade, that this variety is very liable to "go off" in autumn and

when the plant is divided; numbers of fine plants have been lost in this way, and under the ablest cultivators. A specimen in a noted collection, and which produced not long since nearly 100 fine flowers, and was said to be about the finest plant of its kind in England, has died in this way; and we have from time to time heard of not a few other fine plants that have perished in a like manner—gone off at the neck. The first plant which we bought some years ago died in this way soon after we received it. Since then we have been more fortunate. It is worth while investigating the subject, and no doubt the record of experience of growers would be valuable. It is also doubtful if such a low temperature as 45° throughout the winter, and 55° or 60° maximum during the summer, is desirable or necessary. Here the best sorts grow well and strongly, and flower profusely, in a house which is kept from 5° to 10° less than the hot stove, and shade is not given except during bright sunshine. The exposure browns the foliage a little, just as it does that of a Pine-apple; but it is nothing the worse, but rather the better. *O. vexillarium* grows freely at the warmest end of the same house. I would recommend that during the season of growth the plants be kept just moist enough to keep the Sphagnum green and growing, with which the pots should always be surfaced, and that in winter sufficient water only to keep the same alive and fresh should be given, though probably less would do. C.

Lilies in Pots.—We saw a thriving batch of Lilies a few days ago in Mr. Peacock's garden at Hammersmith growing in pots plunged to the rim in a border skirting a wall with an eastern aspect. The kinds that were in best condition were *L. Washingtonianum* and its prettily tinted form (*L. purpureum*), *L. parvum*, *L. Humboldtii*, *L. pardalinum*, *L. Robinsoni*, *L. dalmaticum*, and several of the varieties of *L. elegans*, of which a very deep-coloured form—*atro-sanguineum*—was especially noteworthy. When Lilies are grown in this manner they are well adapted for greenhouse decoration, and this mode of management is better than growing them entirely under glass.

Town Window Gardening.—In a window—212, Vauxhall Bridge Road—a plant of the hybrid *Begonia Weltoniensis* is very fresh and bushy, the end of each growth being laden with pink buds. Elsewhere I have noted it doing well as a window plant, than which I feel sure no news will be more acceptable to its raiser, Col. Trevor Clarke. At 306 in the same road, the small-leaved Ivy forms a fine window blind, spreading elegantly in all directions. It is planted in large pots, and intermixed with it is a plant of *Virginian Creeper*. The Ivy is very fresh and attractive; the *Virginian Creeper* not so much so. Ivy is beautiful enough alone. There is much good town and window gardening in the locality, but these two examples are suggestive and should be seen.—B.

Mealy Bugs on the Roots of Auriculas.—In repotting a dozen Auriculas that have been blooming since last winter in a light, airy, cool greenhouse, I have just found several with mealy bugs on their roots. In some they had attacked the base of the stem, and in others they were all through the ball on the fine rootlets. The plants were in 5 in. pots, and the mealy bugs had evidently gained an entrance through holes made by earthworms. They were large lusty looking fellows that did not appear as though they had suffered from their underground habitation. The plants attacked were in a new house in which very few mealy bugs have ever been seen. Has any one known mealy bugs to attack the roots of plants, and how am I to proceed in such a case? I shook the earth out, killed the bugs, and washed the roots in soap suds and repotted.—DANIEL WITTER, 186, *Lincolner Street, Denver, Colorado.*

THE BREAKING OF TULIPS AND PEAS.

THE remarks of "R. D." (p. 57) on Breeder Tulips in last week's GARDEN are very interesting, and I am induced to ask whether the seedling florist's Tulip, when fertilised solely by its own pollen, will require the usual period to break, or whether the seedlings are fixed from the period of their first flowering. The circumstances are somewhat different from those attending the Pea and the Sweet Pea, which usually take four years before becoming fixed; when the varieties or species are intercrossed, the intermediate state in the Pea not being confined to the colour of the flower, but the colour and shape of the seed and the pod, as well as the height and habit of the plant, vary, and the fixing period in the latter case does not apply to the original seedlings, in which, so far as I have observed, there is no variation. The Pea and Sweet Pea, however, are both annuals, or at least biennials, and in these plants the variation of the seedlings of the first and following generations the produce of a single intercross from those of the generations succeeding them without further intercrossing constitutes the want of fixity. In the Tulip it is the flower of the original seedling which varies. From an intercross between

Pea Supreme, around, blue-seeded variety, with weak green pods and a purple-flowered, purple-podded variety with greyish-white seeds, I selected a seedling of the second generation with black seeds, purple pods, and purple flowers, and on sowing the seeds this year some of the seedlings have produced white flowers and purplish-tinted pods, and others have white flowers and green pods, but without the usual purple stain in the axils of the leaves, so characteristic of the purple-flowered *Pisum arvense*; others, again, have purple flowers and green pods, but the majority purple flowers and purple pods. To further test the extent of variation in the Pea, I have this year *inter alia* intercrossed the white-podded round white-seeded *Pea sans parchemin* with this purple-podded Pea, and also with blue and white wrinkled varieties, and shall anxiously watch the results, as the whole subject is deeply interesting, and, although the analogy is not complete, it would be instructive to ascertain whether in the Tulip, breeders are produced where no intercrossing takes place, and the seedlings are from a self-fertilised flower only. T. LAXTON.

Bedford.

NOTES OF THE WEEK.

The Twining Brodiaea (*B. volubilis*).—This is one of the most remarkable of cultivated bulbous plants on account of the twining flower stem, which is about the size of a crow quill, and which in its native habitat attains from 4 ft. to 12 ft. long, terminated by a dense cluster of about twenty blossoms, which are $\frac{1}{2}$ in. long and of a deep rose tint. The leaves are few in number and from 1 ft. to 2 ft. in length. It inhabits rocky situations in the valley of the Sacramento and other places of California. It may now be seen in flower at Kew, though the specimen is small compared with the size which it attains in a wild state. We have also received some flowers of this *Brodiaea* from Mr. Thompson, of Ipswich, who informs us that he has raised his stock from seeds, as few, if any, bulbs are imported into this country.

Senecio japonicus (syn. *Erythrochæte palmatifida*).—This little-known Groundsel is one of the handsomest of the composites now in flower at Kew. It is of bold habit, growing about 5 ft. high, with leaves nearly 1 ft. across, divided into about nine divisions. The flower stems are slightly branched, and the flower heads are about 3 in. across, with the outer narrow florets of a rich orange colour. It is a native of Japan, but perfectly hardy at Kew. It is a moisture-loving plant, therefore the present season has been very favourable for its growth. It should be grown in a rich and moderately stiff loamy soil, and should be copiously watered during summer.

Odontoglossum vexillarium at Gunnersbury Park. —One of the finest examples in cultivation of this lovely Orchid is now in flower here. It measures over 3 ft. across, and has twenty-six flower stems, each of which bears from four to six flowers, making altogether 139 blossoms. It is now making several new healthy growths, which will probably develop an even greater number of flowers next season. In the same house we noticed some vigorous flowering plants of the beautiful *Epidendrum vitellinum majus*, also *Odontoglossum Alexandræ* in rich variety and fine specimens, amongst which was the variety *Rothschildi*, which has the flowers copiously spotted on all the divisions. The singular *Eriopsis biloba*, with its racemes of rich chocolate flowers, was also in flower, though not showy enough to be grown, except in large collections.

Gunnera scabra.—The huge specimen of this handsome Chilean plant in the herbaceous ground at Kew has now attained its full development for the season. It is fully 10 ft. across, and its gigantic Rhubarb-like leaves are nearly a yard square and rise from 6 ft. to 8 ft. high. It is somewhat strange that this plant is so seldom planted in private gardens or in our public parks, squares, &c., for no other hardy plant has a nobler or more tropical aspect, and moreover, it is very easy to cultivate. It requires a well-drained position, rich soil to grow in, and abundant waterings during the growing season.

Rock Plants at Chiswick.—The rockery is now gay with alpine and other plants of more or less rarity and interest. Of these the pretty creeping *Androsace*, of the Himalayas (*A. lanuginosa*), is conspicuous on account of its long trailing branches covered with silky foliage terminated by clusters of *Verbena*-like blossoms of a pinkish-mauve tint with a distinct yellow eye. Another interesting Indian plant is the wedge-leaved *Potentilla* (*P. cuneata*), which grows in a dense mass, and produces deep green three-toothed leaves, and bears many clear yellow blossoms of about the size of a shilling. A large tuft of the Larch-leaved *Arenaria* (*A. laricifolia*) reminds one of some of the *Saxifragas* which are now just shedding their flowers; it is a capital plant for the rockwork, as it grows rapidly and lasts a considerable time in perfection. Various smaller growing kinds of *Hare-*

bell are in full flower, the best being *Campanula muralis*, *C. garganica*, and its hairy-leaved variety *hirsuta*. The pretty *Saxifraga Hirculus*, an indigenous species, found in a few northern localities and growing only in wet places, thrives admirably here in a rather dry part of the rockery, and is now furnished with several large bright yellow and profusely spotted blossoms. *Pentstemon Cobaea* is one of the handsomest of the cultivated kinds, and at Chiswick it thrives well; both on the rockery and in the open border there are plants in full flower, which are about 2 in. long and proportionately broad; the colour is a delicate mauve with heavy pencillings of a deeper colour in the throat. Few rock plants are prettier than the round-leaved Thyme (*Thymus rotundifolius*), which is apparently a variety of *T. Serpyllum*; it forms spreading dense tufts covered with clusters of small purplish flowers. Flowering plants of tuberous-rooted Begonias also enliven the rockery, several of which have withstood the past winter quite uninjured.

Royal Horticultural Gardens, South Kensington.—In answer to Mr. R. Yorke, the Chancellor of the Exchequer stated the other day that plans for the utilisation of the ground now occupied by the gardens of the Royal Horticultural Society at South Kensington were under the consideration of Her Majesty's Commissioners of 1851, and that the decision arrived at would, no doubt, be in accordance with the original design of employing the estate for the promotion of science and art.

Geranium polyanthes.—A pretty plant bearing this name is now in flower on the rockery at Chiswick. It grows about 1 ft. high, and has roundish leaves similar to those of *G. rotundifolium*. Its flowers are arranged in dense clusters, and much resemble in size, colour, and form those of Bowie's *Oxalis* (*O. Bowieana*). Such a distinct plant is well worth including in a collection, though it is not so showy as several other kinds. We can find no reference to the species, though it was contributed to the collection by the late Mr. McNab.

Milla longipes.—Flowers of this new bulbous plant were exhibited by Mr. Elwes at South Kensington on Tuesday last from plants raised from seeds two years ago. It is more remarkable for the large number of blooms borne in each umbel than for their bright colour. They measure about 1 in. across; their inner surface is of a glossy whiteness, and they are heavily feathered on the outside with a livid purple tint. It is, like its pretty congener *M. laxa*, a native of California.

Rainer's Harebell (*Campanula Raineri*).—Of the many kinds of Harebells now in flower at Kew, perhaps none are so attractive as this charming species. It is very dwarf in growth, being not more than 1½ in. high, but the flowers are unusually large, compared with the size of the plant. They much resemble those of *C. turbinata* in size and colour, though just a trifle smaller. It is growing in the open border in company with the other kinds, and is evidently thriving as well, or even better, than those planted on a rockery.

Heart-leaved Seakale (*Crambe cordifolia*).—One of the most striking plants in Battersea Park at the present time is this handsome Caucasian Seakale. It is a hardy perennial growing about 5 ft. high, with large bold foliage, and flower stems much branched, forming a large roundish head, which at this season is covered with numerous white blossoms. It is a capital plant for the wild garden and such like places, or as isolated specimens on lawns, &c.

Escallonia pterocladon.—This is now beautifully in flower in Mr. Gumbleton's garden at Belgrove, near Queenstown, where it grows with unusual vigour, forming a tree 35 ft. in height in about nine years. When of this size it has a fine appearance, especially when covered as it now is from top to bottom with minute white blossoms. In such localities it is a capital shrub for training against a wall.

Disa grandiflora.—Several varieties of this *Disa* are now in bloom in quite small pans in the Pine-apple Nursery. They have been grown in a house where they have been frozen quite hard during the winter. The stronger growths are encouraged to make flower shoots, and the weaker ones are restricted or removed and potted for flowering next year.

Hardy Aquatics at Kew.—Owing to the increase in the number of hardy aquatic plants at Kew, a properly constructed tank for their accommodation has been a pressing want for some years. This has at last been supplied. The new tank is about 80 ft. long and 24 ft. in width, the outside walls of which are of brick raised about 2½ ft. above the ordinary level. The bottom is puddled with a layer of clay about 15 in. in thickness, upon which is a layer of concrete and cement about 9 in. in depth. The inside surfaces of the walls are also cemented, so as to make the tank perfectly watertight. Several narrow walls intersect the tank, thus forming it into square compartments, in which are planted the more robust-growing plants, and a shelf-like portion is devoted to bog and marsh plants

in pots. A constant flow of water, so essential to the well-being of the majority of water plants, is furnished. Though the planting has not been completed for more than a week or so, several are thriving vigorously, amongst which is the new rose-coloured Water Lily, which is now in flower. The pretty little *Aponogeton spathaceum*, too, is in flower, as well as several other interesting plants. One objection to this tank is the height of the water above the path and the unnatural angle from which the plants are viewed, which considerably mars their effect; whereas under natural conditions the eye invariably looks down upon the plants, the whole of which may be seen at a glance.

Angræcum Ellisi and **A. citratum.**—Messrs. Veitch have recently had a small importation of these very rare species of *Angræcum*. A few of the plants which we recently saw at their establishment were in remarkably good condition, and had every appearance of becoming established and in a thriving state in a comparatively short space of time.—P. G.

Bollea cœlestis.—A specimen of this which is now in bloom in the York Nurseries far surpasses in quality any variety hitherto flowered there. It reaches the highest ideal of the species in size, form, and in the intensely deep blue-purple of its blossoms. Some eight or nine flowers are expanded at once.

Ixias.—Few flowering plants are more beautiful than these or more diverse as regards colour, and yet they are seldom met with in gardens. Many imagine that they are difficult to manage; but that is by no means the case. They have flowered most profusely this year in Mr. Barr's grounds at Tooting, where all the protection they had last winter, severe though it was, was a covering of Fern.

National Carnation and Picotee Society.—The exhibition of the southern section of this Society will be held at South Kensington in conjunction with the meeting of the Royal Horticultural Society, on Tuesday, the 12th of next month.

Corn Exchange Rose Show.—This exhibition, which is annually held in Mark Lane for the benefit of the Corn Exchange Benevolent Society, this year realised over £25 after payment of all expenses.

ROSES.

A ROSE SHOW IN AUGUST.

UNFORTUNATELY all the Rose shows of the season have been too early. The shows have been held, but the Roses, shy and coy, and ill to please at times, have refused to come. With the exception of Mr. Baker's Roses at Norwich, but few perfect flowers have yet been seen this year. They are coming, but have not yet come. The "maidens" especially have not yet put in an appearance. Huge buds, like cricket balls, weigh down shoots like fishing rods, and refuse to open in these dripping days and nights. A good many, however, go on filling, filling, so that when they do open they will be a sight to see. For this reason, and also to mark the peculiar character of the season, it might surely be worth while to make a special effort to get up a great popular Rose show in August. The time is short, but that depends on how long it goes on raining. Looking at the present downpour, which has lasted for about forty-eight hours, it seems as if the rain, like Tennyson's "Brook," might flow on and on for ever. But few of the Rosebuds, however, have rotted; they have only waited. Hence, possibly the middle of August might not be too late for a great Rose show in the metropolis. It may be too late for the upper classes to see it, but that matters little; they have their Roses every day in the year and all the year round. Besides, it is not the upper classes, but the toiling millions that enjoy the sight of Roses most, and that would make a large show in August pay. What say the growers, large and small, to a great show in say, the Agricultural Hall, Islington, as soon as possible? Such Roses as have never yet been seen in August, or perhaps in other month would be forthcoming; and if Roses are worth waiting for they might also be worth showing so late. By breaking fresh ground, a new impetus would also probably be given to Rose culture, so that commercially the show would prove a success; for the sight of such Roses as could be shown in a fortnight or three weeks' time could hardly fail to stir the enthusiasm of the thousands of the working classes who would flock to see them. Financially, the show, if properly managed, would probably succeed, and if not it would be worth some considerable sacrifice of time and money to place the best Roses before the masses; for of all the modern means for their higher education, culture, and refinement, I should give about the highest place to the culture of flowers. For this purpose I would confidently offer the advice to try Roses. I have noticed their power around Nottingham, where they have become bonds of union and centres of sweetness and light to thou-

sands of toiling men and struggling women. A great exhibition of Roses in some such place as the Agricultural Hall might not only prove one of the most notable events of a season unique in its eccentricities, but prove a powerful factor in elevating the tastes and refining the pursuits of the working classes. D. T. FISH.

MR. BAKER'S ROSES AT NORWICH.

THESE were so perfect—without spot or flaw—in a season when the paucity of sunshine, the redundancy of rain, and the prevalence of wind have so retarded and tarnished the finest Roses, that a few words on the secrets, if any, of their production could hardly fail to possess special interest for the readers of THE GARDEN. Of course Exeter is a far more genial clime than that of East Anglia; but these Roses, such as the perfect dozen—the finest ever seen probably—of Charles Lefebvre and others, looked as if no winds had ever ventured to play around their petals nor any rain ever moistened them. Were they the first products of dwarf “maidens,” as generally reported at Norwich, and each flower grown under portable glass lights or frames? Or were they nourished into size, moulded into form, and coloured, finished, and perfumed so perfectly by some specially rich food? Or were these matchless flowers the legitimate outcome of careful culture? Perhaps Mr. Baker himself may be generous enough to enlighten your readers. Another point of much interest is how Roses in the latest stages of size and perfection could be safely transported from Exeter to Norwich without one of them opening its eye. I know not how the Roses looked on the second day of the show, but on the first they were perfect, though, as a capital grower remarked, “on their last legs.” If, in fact, they had a fault it was that they were too large and a little too old. Still not one of them showed its heart nor gave any indication of falling to pieces. Their texture and build were also something unique. One of our finest growers for sale, who was thoroughly beaten by Mr. Baker, declared that a long journey would be well undertaken to see such Roses at the end of it, and generously declared that he had never seen such flowers before. This set me thinking whether Mr. Baker would resent the intrusion of a few enthusiasts or writers like myself to his house of prize Roses, with the express intention of worming out and revealing his Rose secrets, or will he prefer telling us all about them himself? Assuredly he has erected a new and a higher standard in regard to the five vital points of size, form, texture, colour, and freshness of exhibition Roses to which most of us are anxious to attain. I therefore appeal to him to help us with his counsel and guidance through your pages. D. T. FISH.

VICTORIA PARK.

THOUGH the present season has been so detrimental to tender bedding plants which in this park generally form so important a feature, it has nevertheless been highly conducive to the luxuriant growth of hardy perennials, of which there is an extensive collection here, placed as a foreground to a shrubbery nearly a mile in length. This border is now gay with such showy plants as Larkspurs, Monkshoods, Harebells, Irises, Lilies, and a host of other fine border plants, which, being planted indiscriminately, afford a striking contrast to the geometrical designs of the surrounding parterres. Such a border as this affords a vast amount of interest throughout the year, and is highly appreciated, and it gives moreover very little trouble. Seldom at this season have we seen trees and shrubs wear such a verdant hue as they do now, and here, where so much has been done with regard to careful planting and judicious selection, the fact is more apparent than in most places. Victoria Park abounds in handsome specimens of Hollies of a size rarely met with, and in such rich variety too as to show that the Holly is one of the best shrubs for town planting. Various kinds of Elders also thrive admirably here; the golden-leaved variety especially stands out in bold relief amidst the deep green of the other shrubs. The cut-leaved form (*Sambucus laciniata*) is a very graceful Elder, and one which should be in every shrubbery; as should also be its variegated form. The latter does not however always retain its variegated character if planted in the shade, or if it receives too liberal treatment. The golden-leaved Catalpa is another beautiful shrub which is very conspicuous here, and is even preferable to the Elder in some situations. There are but few trees or shrubs in flower at present, though a few weeks ago they were gay enough, for the plantations and shrubberies have been planted with due regard to a copious admixture of those that produce a showy effect during spring and early summer. One shrub, however, deserves notice as it is now very pretty, viz., *Cytisus nigricans*; though an old introduction it is still unsurpassed as a late-flowering kind. It produces its pendulous racemes of yellow blossoms in graceful profusion similar to the Laburnum, though it never attains such a large size.

The picturesque glimpses to be obtained here and there from different positions round the lake are considerably enhanced by huge masses of such plants as the Burdock, the Water Dock (*Rumex Hydro-lapathum*), Common Flag, and various kinds of *Lychnis* and other plants which revel in native beauty round the margins of the islets. This semi-wild kind of gardening is evidently encouraged by Mr. McIntyre, and it is certainly not the least of the many interesting features to be met with in this fine park. Several examples of the Weeping Elm with branches dipping into the water are particularly noteworthy, and cannot be too highly recommended for planting in like situations or anywhere so long as the position is moist. It is much to be regretted that almost every kind of Conifer utterly refuses to grow here, owing no doubt to the impure state of the atmosphere. The specimens that still survive are but miserable examples of what they ought to be. W. G.

PLATE CXC.

IRIS DARIUS AND I. FLORENTINA VAR.

Drawn by the late NOEL HUMPHREYS.

Few border flowers are greater favourites than Irises, the majority of which grown in gardens are collectively called German or Bearded Irises, in contradistinction to the English (*Xiphium latifolium*) or the Spanish Iris (*X. vulgare*), which have bulbous root-stocks. Botanically considered, there are comparatively very few of the German Irises derived from the true *I. germanica*, as there seems but little variation in the colour of their blossoms. The species which appear to have yielded the greater number of the varieties are *I. lurida*, *squalens*, *neglecta*, *sambucina*, *aphylla*, *flavescens*, and *variegata*. These are chiefly of tall growth. The dwarf-growing kinds have probably sprung from *I. pumila*, *lutescens*, *biflora*, *Chamaeiris*, &c. A descriptive list of the principal varieties of these will be found at p. 195, Vol. VI., of THE GARDEN.

The variety of the Florentine Iris represented in our plate was sent to us by Mr. Ewbank; its blossoms are bluer than the type. This is nearly related to the new Cashmere Iris (*I. cashmeriana*), recently named by Mr. Baker, though it is later in flowering and more fragrant. Another section of Iris that has not yet been grown in gardens so extensively as it ought to be consists of the Beardless kinds, which comprise such as *I. virginica*, *versicolor*, *sibirica*, *spuria*, *Kaempferi*, and many others of rare beauty. The culture of these is of the simplest kind; indeed, they grow well in any ordinarily good garden soil. W. G.

Sempervivum Pomelli.—Mr. Jenkins (p. 58) seems to think that I am wrong in supposing the plant at St. Alban's Court to be *S. Pomelli*, and it is possible I may be. It was the coloured tips that induced me to form the opinion which I did. *S. Pomelli* belongs to the *barbatulum* or bearded group, and must be distinct from the *arachnoid* or cobweb section. Nevertheless Mr. Jenkins exhibited at Manchester a plant as *S. Pomelli* without a tinge of colour and densely tomentose or cobwebbed, whereas *S. Pomelli* is only bearded. Mr. Jenkins's plant I pronounced to be *S. Laggeri*, which to me it very closely resembled; and if I am wrong in a guess at *S. Pomelli*, Mr. Jenkins must be equally so as regards the plant which he exhibited.—T. WILLIAMS, *Ormskirk*.

Irises amongst *Salisburia adiantifolia*.—As a rule most plants, owing to the absence of sunshine, are deficient as regards bloom, and instead of admiring the flowers of rock and Alpine plants we have to destroy slugs and trim in rampant growths caused by the continued rainy weather. Roses and Campanulas especially are good, and would produce fine flowers if favourable weather set in. One class of Irises, however, deserves mention. Last autumn I dibbled in a quantity of *Iris hispanica* amongst some *Salisburia adiantifolia* on a bed 9 ft. by 6 ft.; the latter are young plants about from 18 in. to 2 ft. high. The Irises have just overtopped them with their blooms, which are large, of fine form, and of almost every colour, except red or scarlet. The effect of this mixture is exceedingly good, the pretty foliaged *Salisburia* furnishing the otherwise scanty undergrowth of the Iris; besides, the flowers have such substance as to withstand the rain, and for a good many days they look none the worse for it. I am sorry to say that *Lewisia rediviva*, of which I spoke a few weeks ago as doing so well, suddenly became flabby and did not fully expand its blooms. I hear that it has this fault as a rule. I should be glad to be favoured with the particulars of treatment from any one who has it in good health, for it must be a gem when well grown. Thanks to Mr. Williams for his correction (p. 32); instead of *Arenaria balearica* my description should have been applied to *A. maritima* (p. 8).—JOHN WOOD, *Woodville, Kirkstall*.

GARDENING FOR THE WEEK.

Stove.

In ordinary seasons through this and the ensuing month it is usual in the case of many growers to dispense altogether with fire-heat, which may for the most part be done, provided sun-heat is carefully economised through closing the ventilators sufficiently early in the afternoons; but the weather is so different this summer from that which we generally get that, where no fire-heat has been used, the plants are anything but in a satisfactory condition, not alone as regards their backwardness in blooming, but as respects the soft, immature state of the wood. To fully remedy this, even if the weather is brighter during the ensuing month, it will be well to at once give artificial warmth, which will permit of more air being admitted. Another matter of importance in such seasons as this is to reduce the atmospheric moisture considerably, less being needed in damp, cloudy weather, like that which has prevailed all through the spring and summer, than is required when we get the ordinary amount of sunshine with a correspondingly drier condition of the air. The conclusion at which I have long arrived with reference to the cultivation of plants under glass, especially those that require the almost continuous use of fire-heat, is that there is no worse mistake committed in their management than the use of more shading than is absolutely necessary, particularly when it is of an immovable description; I have before alluded to this, but it is long since we had a summer that so fully exemplified the evil arising from it as the present. In houses where the glass is smeared with the usual compositions employed for the purpose, and especially where the material is laid on thickly, the plants have now through the whole of the months wherein the greater portion of the season's growth is made been under the influence of semi-darkness, a condition still further aggravated when the structures are of a heavy character, and the plants a considerable distance from the roof. Where this is so, I have seen in some places such plants as *Allamandas* and *Dipladenias* show little disposition to flower, and altogether in an unsatisfactory state. It is, therefore, obviously necessary to dispense with shading from this time forward as far as possible, with a view to ripening the wood before the days get short.

Gardenias struck from cuttings this spring, or plants that have been cut back with a view to keep them within limited bounds, must during the next month be encouraged to complete their growth, as after that time the treatment should be such as will tend to solidify the wood rather than increase its amount. With these the disposition that frequently exists in the flower-buds to fall off when forced during the winter and spring is, I feel convinced, attributable to an immature state of the wood more than to any other cause.

Climbers.—Plants of this description grown on the roof or rafters require constant attention to keep them within reasonable bounds; but it is necessary to use the knife with judgment, indiscriminate shortening, especially with free-growing subjects, in most cases having the effect of limiting their blooming capabilities. The right way to proceed where they are growing so as to encroach upon each other, or to too much diminish the light in the case of plants beneath them, is to remove a sufficient number of the shoots altogether, selecting those least likely to give a succession of bloom. This is a work of absolute necessity, for however effective for the time being a free uninterfered-with growth may be, it is no compensation for the flowerless state to which subjects grown under it will be reduced. Between these roof climbers and the general occupants of the house there must always be a compromise, otherwise the result is that the stove virtually exists for the climbers, as nothing under them can grow to a condition fit for the purpose for which it was intended. The treatment recommended especially applies to such free-growing plants as *Allamandas*, *Clerodendrons*, *Aristolochias*, *Bougainvilleas*, *Ipomæas*, and the strong-growing *Thunbergias*, *Stephanotis*, *Hoyas*, *Dipladenias*, *Combretums*, and others of a like character are not so rampant in growth as to admit of much cutting without proportionately diminishing the amount of flower which they would otherwise produce. In the case of climbers or twiners grown for their effective foliage only, there need be no further hesitation as to using the knife than to avoid giving them a too closely trimmed-in appearance, which can always be avoided by leaving a few of the shoots in a pendent position.

Winter-flowering Stove Plants.—The same conditions as regards absence of sun and low temperature that have affected stove plants generally hold good more forcibly in the case of ordinary winter blooming subjects which may be said to comprise *Serico-graphis*, *Ghiesbreghtii*, *Thyracanthus rutilans*, *Poinsettias*, *Lisianthras*, *Euphorbia jacquiniæflora*, *Eranthemum pulchellum*, and *Plumbago rosea*. Unless the plants were struck early, and were unusually forward in the spring, they will now be both small and full of soft

growth; the ordinary summer treatment under which such plants generally succeed well in pits with little or no fire-heat is not sufficient this season to get them up to a large enough size and permit of their receiving sufficient air to keep the growth of that short stout character essential to free flowering. It is therefore advisable to apply heat at once where this has not all along been used.

Bouvardias.—These indispensable winter-blooming plants should now receive every assistance to enable them to acquire size and strength, for on this almost wholly depends the amount of flower which they will produce. One stout plant with strong shoots, which is capable of bearing a second and third crop of flowers after the first have been cut, will furnish more bloom through the winter than three weakly ones. In the case of cut-back examples that have bloomed previously, there need be no difficulty in getting them sufficiently large before autumn, but with those that have been propagated from root or shoot cuttings during the winter or spring the case is very different, and unless means are immediately taken to encourage growth in every available way, the time that admits of it will be past whilst yet the plants are so small, as to be of very little use during the coming winter. With them it is simply a question of enough artificial warmth, and should the weather continue cool and sunless, it will be necessary to at once employ as much fire-heat as will insure brisk growth, and permit of sufficient air being admitted; but these plants, if in a light position, will do with less ventilation than those subjects that are of a less free-flowering disposition. For the same reason they may be kept growing later in the season, as they do not require such a lengthened ripening process as those plants that are less inclined to bloom almost continuously.

Shrubby Clerodendrons.—For general decorative purposes these are most useful grown and flowered in 8-in. or 10-in. pots, discarding the plants afterwards; this, of course, necessitates their yearly propagation, either by means of seeds or cuttings; the present is the best time for striking them, as, if put in earlier, they get larger before winter than is needful, occupying more room than they ought to do, and if struck late they do not get sufficiently strong to admit of the full development of which they are capable. The small shoots pushed from the stems after the removal of the heads of flower make good cuttings if treated in the ordinary way in small pots with sandy peat or loam and heat, shade, and moisture. Those possessing a stove, however small, and who appreciate one of the most exquisitely-scented flowers in existence, will find the old *Clerodendron fragrans* surpassed by none; it is a comparatively small-leaved plant, with spare, erect growth, occupying little room, and should be cut down within a few inches of the collar each autumn; thus treated it can be kept small in size for a number of years. The usual stove treatment suits it and the others.

Orchids.

Aerides and Saccolabiums.—Any remaining plants of these that have flowered late, and that require re-potting, should at once be attended to; but, with them as with other Orchids, blooming generally exhausts them, causing them to shrivel somewhat, and on no account should they be subjected to the more or less root-disturbance inseparable from re-potting until sufficient time has elapsed after blooming for the plants to regain their wonted plump condition.

Phalænopsids.—These more than most Orchids should never be disturbed unless there is an unavoidable necessity for moving them; the tenacity with which their roots cling to everything with which they come in contact, and the difficulty experienced in moving them without serious mutilation, at once show the weakening influence that removal has upon them. Yet when the blocks, baskets, or whatever they are grown in are of a perishable character, such as when made of wood, the time comes when decay reduces them to a spongy rotten mass, so soft that the roots can penetrate it; and when this takes place they ultimately decay from the effects of contact with the saturated rotten material. Hence it is necessary to move them before they are reduced to this condition; inattention to this has brought numbers of fine specimens of these beautiful plants to very small dimensions, from which they take years to recover. Whatever wood is employed in the construction of the blocks or baskets it should be of the most durable character; the plants must be well secured until the roots have time to establish themselves. Use only a thin stratum of Sphagnum over them; a considerable body of this material is not necessary, and when present in quantity it only hastens the destruction of the wood. I have found *Phalænopsids* do well tied with wire to the bottom of an inverted flower pot with Sphagnum over their roots similarly to when on a block of wood. The inverted pot should be placed in another of larger size, half full of drainage material, and the remaining space should be filled up with charcoal and a little Sphagnum. In this way there is nothing that will rot except the Sphagnum, which when too much decomposed can be removed, syringing all the

remains clean out after the rest is picked away by hand, replacing it with fresh material.

Dendrobiums.—Such plants of the different species as bloomed early, and have made a correspondingly early growth, will now be somewhat at rest. This will be especially the case with *D. nobile*, *D. chrysanthum*, and others that are used in numbers in many places for decorative purposes, as also the earliest-bloomed examples of *D. Wardianum* and allied species. These, when their young growths are approaching a matured condition, should be gradually inured to a drier state at the roots, yet water should not be withheld so much as to suddenly stop the pseudo-bulbs from attaining that plump character which is essential to the free production of bloom. The majority of these plants will now be in full growth, and must be liberally supplied with moisture both at the root and in the atmosphere. Unless in the case of a few exceptional species, there is no way in which they succeed so well as grown in baskets hung up close to the roof; not only do they grow better in that way, but the stout matured condition of the pseudo-bulbs always enables them to produce a greater quantity of flower than when grown in pots in the ordinary manner. Thus treated they have also a more natural and pleasing appearance either when growing or when in bloom. Even the old partially-erect-growing *D. nobile* looks best in this way, the ordinary forms assuming a half drooping habit.

Pleiones.—These beautiful little winter-flowering plants will now be fast forming their bulbs; they are water-loving subjects, and must be kept well moistened at the roots.

Cœlogyne cristata.—In many places where no regular collection of Orchids is attempted, but where a few of the best winter-flowering kinds are required, this fine old plant is indispensable, and should be grown in quantity so as to have it in succession; it is also a plant that must have plenty of water during the growing season, as, like all others found indigenous at considerable altitudes where they are all but continuously in a half saturated condition, it cannot endure anything approaching dryness at the roots whilst the growth, as at the present time, is in full progress.—T. BAINES.

Flower Garden.

Auriculas.—All the plants reserved for seeding purposes will have been repotted, and by referring to previous numbers the character of the compost, size of pots, and treatment of the plants can be ascertained. Any seeds that have been saved will also be sown. We never get quantities sufficient to make it necessary to sow in pans—indeed, we usually sow two different lots of seed in a 5-in. pot, marking the division between the two with a small strip of lath. I use light soil in which to sow the seeds, and do not add any manure to it. Good loam four parts; one of leaf-mould and a liberal addition of sharp sand answer well. The lights have been kept over the plants rather more this season than usual, and the result of the closer atmosphere is that green fly has been troublesome. The best way (when the collection is small) of destroying this pest is to brush it off the leaves; or the plants can be dusted with Tobacco powder. Fumigating with Tobacco smoke is the cleanest plan if the frames are close. I would urge the importance of taking care of the seedling plants. Auricula fanciers find pleasure first in selecting certain varieties to cross for seeds, then crossing them and saving the seeds. They watch the development of the pods, and long for the time when the seed will be ripe. No time is lost in sowing it. Then the seedlings appear, and when large enough they are potted, and carefully tended until blooming time. The anticipation of something new amongst them keeps up the interest which might otherwise flag at certain seasons.

Carnations and Picotees.—As I write this after inspecting my collection I must record the fact that only six flowers are open, notwithstanding that the plants were pushed on in frames up to the end of April. Plants in borders and beds are at least a fortnight later still, and this is the date at which these flowers ought to be in full beauty. Attend to tying the flower stems to sticks as they advance in growth; for if this is neglected, some of the flowers will be heavy enough to snap the stems through at the joints. The flowers ought also to be finally disbudded; very weak plants and stems will support and bring to perfection one flower only, stronger stems two, three, and four flowers. Remove weeds from the pots, and attend carefully to watering; but do not use any manure water—the white in the flowers will be much clearer without it.

Hollyhocks.—As regards these, little information is necessary beyond that given last week. The sun, which has been shining rather brightly for a few days, has caused the leaves to flag; a good plan is to syringe, applying it well underneath the leaves, in order to check the development of red spider.

Dahlias.—These now require close attention; they should be looked over twice, or at least once, a week in order to thin out superfluous growths, and to tie up and place sticks to those that require

such supports. Trap earwigs by placing hollow Bean or Hemlock stalks near the top of the plants, and examining them every morning. Dahlias are looking very well indeed, and so far they have not required any water at the roots. Surplus growths may be used as cuttings, which will strike root in a cold frame, or more quickly in a gentle hotbed. These cuttings produce plants that may be grown in 3-in. pots, and will form what are termed pot-roots.

Pinks.—These are now in full beauty, and just a month later than usual. The blooms, however, never were larger or better laced than they are this year. Until this season I have not seen the Pink do so well except in Scotland, a circumstance which shows that it does not like the hotter, drier atmosphere of the south.

Pansies.—The same may be said of Pansies, which never do well in a hot, dry season, not even though mulched and watered. The sun seems to bleach the colour out of them, and neither these nor Pinks like much shade. It is to be regretted that fine show flowers—the white and yellow grounds with rich dark-coloured beltings, and the white, yellow, and dark-coloured selfs—are being so much displaced by the fancy varieties. These, with their bright colours and grotesque markings, are pretty enough, but they sadly lack the beauty and refinement of show flowers.

Hardy Cypripediums.—The stems of many of these have in ordinary seasons been decayed by this date, but as yet most of them are green and healthy looking. See that none of the pots become too dry, but on the other hand it is not desirable to over-water them, although it is better to err that way than allow them to suffer from lack of moisture. Syringe overhead twice a day, and shade from bright sunshine.—J. DOUGLAS.

Kitchen Garden.

Not the least of the many disadvantages of the present season is that arising from the late maturation of early crops, preventing their being used or harvested, and thus affording space for subsequent crops; of course, where spare ground is plentiful this inconvenience will not be felt. Shallots, Garlic, early Peas, early Cauliflowers, autumn-sown Onions, and the earliest kinds of Potatoes ought long ago to have been harvested, and as soon as they are lifted let the ground be cropped as follows:—on the Shallot, Garlic, and Onion ground put Lettuces, Endive, Turnips, and early Horn Carrots; on the Cauliflower ground, winter Spinach; and on the Potato ground, Broccoli or other kinds of winter Greens. If the ground was well treated for the preceding crops, no preparation beyond that of cleaning and levelling will now be necessary. We usually plant the main crop of Broccoli on the Strawberry plot that has done duty for two years. As soon as the fruit has all been gathered, the plants are planed off with spades, and the Broccoli planted between the rows in holes made with a crowbar, and filled in with fine soil. Under these conditions Broccoli thrives at least as well as on ground that has been elaborately prepared, putting out of the question the saving of labour and time. As regards Potatoes, the present outlook appears to be very dark, for all the mid-season and late kinds are as yet making but scant progress towards maturity, and if the murrain sets in—which it is almost certain to do very soon—in their present immature state they must entirely succumb. I would recommend that all early kinds, if anything like fully grown, should be housed at once, without waiting for the skins to get hard. This early lifting does not affect their keeping qualities, and their need be no danger of their going bad if dug up before there has been any trace of disease. Were it not that one is constantly being pestered to try some new kind, or afraid of being behindhand in Potato competitions, I would strictly confine myself to growing only first early sorts, with a view to lifting them ere they were in danger from disease. This appears to me to be the only remedy, and eventually we shall come to regard earliness in all kinds of Potatoes as second only to quality. If any of the seeds that were recommended (see p. 39) to be sown have not yet had that attention, any further delay will result in their not wintering successfully. Small Saladings, Mustard, Cress, Radishes, &c., may still be sown in open borders in small quantities weekly, and as French Beans are not likely to do much good outside, provision should be made for making a sowing forthwith, either in frames, or in pots to be introduced into houses or pits as room can be found for them.—W. W.

Indoor Fruit Department.

Early Vines from which the Grapes have been cut are manifesting an undesirable tendency to produce wood, and stopping, which is the only way to meet the difficulty and induce earlier ripening and resting, must be persisted in. Keep the houses as cool as possible, and the foliage clean and free from insects, which, now that the fruit is used, will be a comparatively easy task, as syringing may now be done whenever it may be thought necessary. If the borders are at all unsatisfactory, now is the time to see to them, either as regards the examination of old drains or making new ones,



or giving additional soil and top-dressing. Of course suitable weather must be chosen for such work, as it is very undesirable to be moving soil when it is in a pasty condition, both as regards the Vines and one's own comfort. Give air freely to Grapes colouring, but guard against cold currents, which are oftener the cause of "shanking" than the state of the soil or border, which generally gets the blame and sometimes perhaps rightly. A severe check of any kind, occurring at that critical juncture when the fruit begins to change from the sour to the saccharine state, will cause shanking, and perhaps there is no greater cause of that evil than over-cropping; and yet how slow we are to acknowledge the fact or to rest content with one good bunch rather than two inferior ones shanked. The quantity of wood being made by Vines in all stages of growth is something remarkable, so much so that it is difficult to keep pace with it as regards stopping and tying out, but the dull season demands that this should be done regularly, in order to afford all the light possible for the thorough ripening of the wood. Go over late Grapes prior to colouring and clip out all small or imperfectly fertilised berries, and if necessary tie up the shoulders of the bunches. All that are intended to hang on the Vines or keep long should be well thinned out, especially towards the middle of the bunches, else in the winter, should one berry crack or go mouldy, the entire bunch will be sure to follow. The unfavourableness of the season still renders fire-heat absolutely necessary in order to ensure the Grapes being ripe before the end of September.

Figs.—Although the first crop of these swelled off well there was a lack of flavour, for, apply fire and give air as freely as one may, they do not play the part of sun heat, and the Fig is perhaps more than all other cultivated fruits a sun-loving plant. It is, therefore, to be hoped that the second crop, which is now swelling freely, will be more fortunate as regards that flavour-giving element—sunshine. Expose the fruit as much as possible by keeping the shoots thin and well stopped back; should there be danger of overcrowding, it will be well to thin out not only young shoots, but some of the longest, barren, or naked ones; for, though as a rule all such pruning had best be deferred to the resting season, if done a little at a time, and at long intervals, no danger need be apprehended from bleeding. Thin the fruit to reasonable limits, taking off first all the unshapely ones, and next the smallest and those that are badly placed as regards light and air. Water liberally, and always with guano or other manure water, that is, if the roots are in confined borders, as all Figs should be; of course, if the roots have unbanded liberty, such artificial feeding would be injurious rather than otherwise, as it would tend to the production of gross unfruitful growth. Pot trees that have done fruiting must not be neglected; supply them with plenty of clear water and syringe twice daily. So long as the weather continues dull they will ripen best indoors, but if a bright period ensues, gradually inure them to bear full exposure on a sunny aspect, plunging the pots in leaves, cocoanut-fibre, or cinder ashes, to render watering as infrequent as possible.

Peaches and Nectarines.—We have been bothered with black fly, which made its appearance on the trees just as the fruit began to ripen; hence fumigation, the best remedy, was out of the question. Tobacco liquor and soap suds, applied three days successively with the syringe to the affected parts only, so as not to injure the fruit, has freed the trees of the pest. Whenever such attacks are feared, it is well to fumigate as a preventive before the fruit has attained so advanced a stage. Ripening fruits cannot have too much air; the slower they mature the deeper will be the colour, more piquant the flavour, and they will keep longer after gathering than fruit ripened with express speed. When the fruit has been gathered be just as attentive to the wants of the trees as previously, an admonition all the more necessary seeing we are apt to think that when the crop has been gathered the trees will take care of themselves. Copiously water inside borders, and mulch with stable litter or droppings to prevent the soil from cracking. Trees in every stage of growth, except those bearing ripe fruit, syringe daily, and keep the shoots from overcrowding by timely pinching and tying.

Melons.—In ordinary seasons fire-heat might at this time be dispensed with, but under present conditions as regards weather brisk fire-heat is still needed in order to obtain full-flavoured fruit. A minimum bottom-heat of 70°, and the same of top heat are indispensable for crops approaching maturity, and air must be given freely whenever the weather is favourable. Keep the soil in a moderate state as regards moisture, and when watering is necessary let it be done thoroughly and always with water of the same temperature as that of the border. To some, the question of a few degrees difference between the temperature of the water used and that of the border may seem of little moment, but of this I am certain that it not unfrequently makes all the difference between a good crop and a bad one; indeed, it is by a combination of so-called little matters that success in most matters is attained. Stop and tie in successional plants, and carefully guard the foliage from injury

of every kind, exposing the fruit to light as much as possible. It is not yet too late to plant more Melons if wanted, but they should be got out without further delay.—W. W.

THE LIBRARY.

ESSENTIALS OF DIET.*

THIS is a useful little work, and if its prescriptions were followed medical men would find a large portion of their occupation gone, for one may lay it down as a general rule that most diseases of the digestive organs arise either from ignorance or from a wilful disregard of the laws which should regulate our diet. The oft-quoted proverb which tells us that what is one man's meat is another man's poison, although hackneyed, is nevertheless true, and the aim of the author and editor has been to point out the best means of distinguishing between the "meat" and the "poison." The diet that is "meat" to the stalwart, stolid labourer at the plough would be "poison" to the weak-framed student with finely strung nerves, and *vice versa*. The chapter which more especially concerns the readers of THE GARDEN is that on vegetable food. Commencing with a description of the cereals generally, the author very justly condemns the prevailing mania for purely white bread, and advocates the use of what is now generally known as whole-meal bread. The inner coating of the grain, which is removed during the process of dressing, is of very great value, for it contains the elements of nutrition for muscle, bone, and brain; consequently the more thoroughly this is removed in dressing the less valuable is the flour as a food. The author tells us that in the north of Germany oatmeal soup is a favourite diet, but he does not give any receipt for its preparation. He is wrong, however, in his description of the Irish stirabout, which he tells us contains Indian corn meal. This is a mistake, for stirabout is precisely similar to Scotch oatmeal porridge, the Maize meal being a modern innovation. He also omits all mention of the Italian polenta and the numerous American preparations of Maize. Vegetables generally he divides into four classes. 1. Sugary vegetables, such as Potatoes and Turnips. 2. Stimulants, such as Asparagus and Garlic. 3. Antiscorbutics, Salads, and Tomatoes; and lastly, Diluents, such as Cabbages, Sorrel, and Nettle tops. The dietetic characters of all our ordinary vegetables and fruit are given at length, and will be found useful to those who suffer from dyspepsia from eating vegetable food. The author, in speaking of seaweeds, very justly regrets that they are so much neglected as articles of food, seeing that they are richer in flesh-forming material than Indian Corn or even oatmeal. The editor adds an interesting chapter on the diet for singers and speakers.

C. W. QUIN.

SCHOOL GARDENS.†

MRS. MANN has done English readers good service in presenting them with the present translation of Dr. Schwab's account of his success in establishing school gardens in Austria. There is no adjunct to the schoolroom which in the hands of the skilful teacher can be turned to such profit as the school garden. Thousands of such gardens are in operation in Austria at the present moment, all of them being the fruit of Dr. Schwab's intelligent labours. Besides the opportunity that a school garden offers for the practical teaching of the first principles of agriculture, vegetable physiology, it may be also turned to account in various ways. The operations necessary for keeping a small garden in proper order are all healthy, and are looked upon by a healthy child as play and not work. Charles Dickens unconsciously enunciates a grand educational principle when he makes Mr. Squeers teach his boys botany by sending them to weed the garden. A handful of weeds in the hands of a teacher well acquainted with the Socratic method of teaching will give a child a greater insight into the phenomena of plant life than a knowledge of the meaning and derivation of half the sesquipedalian words that ever were coined. Not only this, the child's moral and intellectual faculties are pleasantly exercised and cultivated without his being aware of it, more especially his patience and watchfulness, for he soon finds out that he must wait for seeds to germinate and for flowers to blossom, and sad experience will soon show him that a very little neglect will kill the pets which he has taken so much pains to rear. Austria, France, Sweden, and even little Belgium, all have their school gardens. Where are ours? Has there been a single Board school

* "Essentials of Diet, or Hints on Food in Health and Disease" By the late E. H. Riddock, with corrections and additions by E. R. Shuldharn, M.D., F.C.D., &c. London: The Homeopathic Publishing Company. 1879.

† "The School Garden; being a Practical Contribution to the Subject of Education." By Prof. Dr. Erasmus Schwab, Director of the Military Academy of Vienna. Translated by Mrs. Horace Mann. New York: Holbrook & Co. 1879.

built during the last two years with a garden attached to it? and yet such an adjunct is as necessary for the proper teaching of vegetable physiology and botany as the black board is for teaching arithmetic. Mrs. Mann adds considerably to the value of Dr. Schwab's excellent little book by adding a number of practical suggestions of her own with regard to the best means of carrying out Dr. Schwab's plans. We cordially recommend Dr. Schwab's little work to all who are engaged in the education of the young, whether parents or teachers. By following its teachings many a pleasant little spot might be formed either in the home or school garden, or even on the nursery window sill, which would help our little ones to acquire a knowledge of those things of beauty which are joys for ever and which constitute the vegetable kingdom. C. W. QUIN.

TREES, SHRUBS, AND WOODLANDS.

Early Leafing in the Oak and the Ash.—Owing to the protracted wet season and the heavy masses of foliage considerable damage has in many places been already done to trees by falling branches, and by the browsing of cattle, so that it is difficult to maintain the usual neatness in parks and other places to which cattle have access. This is more especially the case with the Lime, the Beech, and the Ash. So far as the present season is concerned, the old calculation that a wet summer follows the appearance of the foliage upon the Oak before that upon the Ash, seems likely to be verified; for throughout this part of the country (Kent) the Oak had a considerable start. But observations extending over a number of years have convinced me that whenever a cold spring succeeds a severe winter, the Oak, on account of its being the deepest rooted, and therefore the least affected by the season, gets the earliest start; whereas during an early warm spring, the Ash, which on account of its shallower rooting first feels the sun's influence, takes the lead. Thus instead of predicting what may possibly follow in the course of the season, the relative appearances of the foliage upon these two trees afford certain indications of the weather which has preceded them.—B.

Disbarking Timber.—Considerable difference of opinion prevails as to the necessity for barking trees immediately after they are felled. In some cases, as in that of the Alder when cut for hop-poles, the durability of the wood is considerably increased by taking off the bark at once. But in other cases, and particularly in that of the Larch when used whole for posts, the preservation of the bark greatly prolongs the soundness of the timber. Thus I have seen the butts of whole Larch, which had been put up as posts in a fence with their bark entire, removed sound at the end of more than twenty years; while those which had been squared out by the saw and axe, were so decayed as to be almost worthless. Wherever the bark contains a conservative quality, or any substance which makes it repulsive to insects, it should be retained for as long a period as it will maintain its soundness; but after that time either by its retention of moisture, or by harbouring insects which prey upon the wood, it becomes mischievous. During the time that it remains sound the bark is also useful in preventing the cracking of the timber from the influences of the sun and air.—A. J. B.

Fremontia californica.—This strikingly beautiful wall plant produces its large yellow blossoms freely on spurs, and upon young shoots of the preceding year's growth. The leaves as they expand have, a short distance off, the appearance of those of a Hawthorn or flowering Currant, but upon closer inspection they are found to be of rounder outline, and of much softer texture than those of the Hawthorn. It looks beautiful when trained either horizontally or obliquely, and seems to flower best when cultivated upon the same system as that on which we grow the Peach. The long, fine shoots that are exposed to air and light, and which have room to grow and develop themselves and get thoroughly ripened, produce clusters of large yellow flowers which cannot fail to attract admiration.—*Gardeners' Chronicle*.

—This shrub is now flowering most effectively here and there throughout the country on sheltered walls, but in the Royal Botanic Gardens, Glasnevin, from whence we have received flowering specimens, it is now in perfection. As a rule, it will succeed best as a wall shrub, but in Devon and Cornwall it may be grown as a bush on a sheltered part of the lawn or shrubbery with every success, along with the Fire Bush (*Embothrium coccineum*), *Escallonia macrantha*, rare *Spireas* of frutescent habit, and the exceptional *Xanthoceras sorbifolia*. It is Sterculiaceae, and nearly related to the singular Hand Plant of Mexico (*Cheirostemon*). The main point, however, is that it is a hardy shrub from the Californian Sierra Nevadas, and perfectly amenable to good culture in our gardens, and so distinct is it that no garden of any pretensions should

be allowed to be without at least one example of it, if not in bush form, at least on a sunny wall, where its wood may get so well ripened in autumn as to cause it to flower well during the following summer.—B.

—This has been flowering very finely at Messrs. Rollisson's during the past month. Its flowers are rich golden yellow in colour, and measure upwards of 3 in. in diameter; the calyx envelops the petals until they are about to expand when it falls entirely away. The plant in question is planted against a wall facing the west.—W. H. G., *Tooting*.

Yellow-flowered Horse Chestnut.—I remarked at Knap Hill the other day a yellow sport of the Pink Horse Chestnut, which is being propagated, and which will be an interesting addition as regards colour to the other forms of this ornamental flowering tree.—P. G.

Evils Resulting from Divided Interests in the New Forest.—The proprietor of the underwood must wish to prevent the growth of timber by which his crop is diminished; and it is for the advantage of those to whom the herbage has been granted that no wood should grow up of any kind. The whole is a perpetual struggle of jarring interests in which no party can improve his own share without hurting that of another.—*Extract from Report of Commissioners appointed in 1788*.

The Present State of Woodlands.—Instead of affording the pleasure which is usually derived from a ride or a stroll through their mazes, nothing can be more cheerless than the present appearance of woodland drives and footpaths. Rank undergrowths obstruct the pedestrian, and drooping and dripping branches spoil the pleasures which otherwise might be derived from a woodland ride. In sheltered spots with a tolerably dry subsoil, Firs, Pines, and many of the young deciduous trees have already made a good growth; but upon the cold clays and in the more exposed places last winter's transplants are languishing.—B. J. A.

Picturesque Willows.—The Willow in our landscapes is often an object of admiration, but it is among the neglected trees in what might be called ornamental planting, the best species not often getting a chance of forming the noble trees that we know them to be when they have full room for development. There are some good Willow trees in St. James's Park, and there are some wonderful ones in the English Park at Zurich. The curious specimen here figured occurs in France, and is one of the most picturesque trees of the kind to which it belongs. The tree bent over by a storm or other accident forms an arch.

A Gap in the Avenue.—"Let any one stroll along beneath a stately avenue of Elm or Beech. Three or four Elms are passed and are evidently sound, but the fifth—a careless observer might go by it without remarking anything unusual—is really rotten to the centre. At the foot of the huge trunk, and growing out of it, is a bunch of sickly-looking fungi. Thrust your walking stick sharply against the black wood there and it penetrates easily, and with a little pushing goes in a surprising distance; the tree seems undermined with rottenness. This decay really runs up the trunk perpendicularly. Look: there are signs of it above at the knot hole 30 ft. high, where more fungus is flourishing, as it always does in damp wood. The rain soaks in there and filtrates slowly down the trunk, whose very heart, as it were, is eaten away, while outside all is fair enough. Presently there arises a mighty wind, the tree snaps clean off 20 ft. above the ground, and the upper part falls a ponderous ruin, carrying with it one of the finest boughs of its nearest companion, and destroying its symmetry also. What a gap it has left in the avenue! In a minute the growth of a century gone, the delight of generations swept away, and no living man, hardly the heir in his cradle, can hope to see that unsightly gap filled up."—*The Gamekeeper at Home*.

Oak as a Substitute for Box.—In the vegetable garden at St. George's Hill, Byfleet, Oak is exclusively employed for bordering the walks. Acorns were sown some ten years ago, and the edging is now only about 6 in. in height. It is, I believe, clipped twice in the summer, and presents a very fresh, neat appearance throughout the season. The leaves, of course, fall in the autumn, but an evergreen edging to the kitchen garden walks can scarcely be considered indispensable. Mr. Rose considers Oak to be in many ways far preferable to Box. It does not need renewing or fresh planting, neither is it susceptible to injury, and the comparative ease with which it is made, and the inexpensive nature of the material, are great points in its favour. It is well known that Box edging requires a considerable amount of labour and care to keep it in good order, whereas the Oak thus treated forms a dense scrub, requiring but little attention to maintain it in good condition, and is capable of enduring with impunity a considerable amount of rough usage.—J. CORNHILL.

HORTICULTURAL IMPLEMENTS.

Lawn Mowers.—As regards these I am not going to recommend any particular maker, but only offer a few comments on the adaptability and advantages of the different sizes in relation to their usefulness. There are a good many different sizes of lawn-mowers, from 6 in. up to 3 ft. or more, but the work, in places where there is employment for a lawn-mower, is done in most cases by three or four sizes—the single or two-men machine, the donkey, and the horse machine. We have little hesitation in saying that all sizes besides these are to a certain extent useless, although plenty of inexperienced people are persuaded to invest in small machines. 6-in., 8-in., and 10-in. machines are recommended as suitable for women and boys; but it is soon discovered that to work even the lightest of the three is too much for a woman, or a boy either, and that it takes twice as long to go over the ground with it as it would with one 12 in. wide. Hence the exertion required is about six and half a dozen in the end. Such small machines are mere toys; and it should always be remembered that a lawn-mower cuts a less breadth than the actual width of the knives, as an overlap in cutting has always to be allowed, in order to avoid leaving a strip uncut at each journey. This overlap need not be more than an inch; but, unless the operator is expert at his work, he may perhaps lose 2 in. or 3 in. every journey he takes. This is a disadvantage in all lawn-mowers, but particularly in small ones. In actual work all sizes should be calculated at from 1 in. to 3 in. less than the width of the knives. Where an able-bodied man has to use the mower, a 14-in. or 16-in. is certainly not too large when the Grass is cut frequently, and kept as closely shaven as a croquet lawn; but when the Grass is allowed to get long before it is cut, then a 12-in. machine is as much as any one man can push or draw, and it is very hard work indeed, and such as the same man should not be called upon to do every day. It is by far the most economical plan to provide as large a machine as the man or the horse can work effectively; but a too large one entails loss of time, as the journeys are performed at a disproportionately slower rate, and more frequent rests are made. For two men 22-in. and 24-in. sizes are usually recommended; but as a rule the 22-in. is large enough; and, as a matter of fact, the 24-in. machines, of the best makers, are oftener worked by three men than two. This has been our experience, and we discontinued the two-men machine altogether, and employed a full-sized donkey machine instead, at a cost of 5s. per day, man and boy, against 9s. for the three-man, or 6s. for the two, and much more work was done. With the donkey machine, and one 12-in. one worked by a man, we can do as much work as was formerly done by a horse machine and the man one too. A horse machine is well enough for cutting large open spaces, but in pleasure grounds it leaves too many corners for the scythe, whereas a donkey machine can cut even round small flower beds, and what it leaves the 12-in. machine can cut in a short time. Just a word as to the construction of lawn-mowers. Our opinion is that the makers do not realise the importance of making their machines as light as possible, and that every needless pound of iron handicaps the working power seriously. Several of the machines in repute are heavier than they need be. One maker, for example, supplies solid iron handles for the shafts, weighing a good deal. The shafts themselves, also of iron, are generally too strong and heavy; and the crossbars and fixing might frequently be greatly reduced in weight, and thus lessen the exertion in working such machines. Makers may depend upon

it that the machine which is lightest in draught will always be the most popular if it be otherwise good.

Wheelbarrows.—This is an indispensable garden implement, if it may be so named; but, as a rule, those in use in private gardens are far too heavy and clumsy, being usually made by the country joiner, who looks to strength chiefly. Could not our professional horticultural builders supply an article of lighter yet strong make? Barrows made of heavy inch deal, with Ash shafts 2½ in. to 3 in., legs, ribs, and wheels in proportion, and clumsy iron fittings, as commonly made, are too heavy by half for garden purposes, and impede the work, for a man cannot—or at least will not—take a heavy load on a heavy barrow.

Ladders.—What applies to barrows also applies to garden wall ladders, which sometimes are as much as a man can carry. The French employ ladders made, both spokes and sides, of fluted iron, and they are exceedingly light and handy. These are made for all purposes—for walls and trees, and for Grape trimming, &c., with a movable seat for the thinner. Telescope ladders are also used where a long ladder of portable dimensions is required.

Sweeping Machines, &c.—Among the machines that have yet to be produced for garden purposes is a Grass or leaf sweeper and an edging cutter. Both these have already been offered, but they do not meet the want. The sweeping machine is constructed on the same principle as the lawn mower, a brush being substituted for the knives; but it does not answer—it is too much of a "scrub." Indeed, the same machine has been used for brushing carpets, but it is not popular for that purpose either. A machine to sweep a lawn must go with a "whisk," and be driven by considerable power. Such a contrivance, on the principle of the hay-tedding machine, is, we think, quite possible. As to the Grass-edging cutter, nothing as yet approaches the shears in the hands of a good workman. They gather up all the Grass and projections; but the edging machine misses all that is out of the line of the revolving blade, and a boy has

to go after it and pick it off. The knives, too, soon get blunt and out of order. One of the latest introductions among tools are the American steel rakes, light handy tools, which are greatly recommended. We have tried them and found them wanting. Rakes are used frequently for other purposes than raking walks—such as cleaning out shrubberies, &c., and at such work we find the steel teeth to snap whenever they come against a stump, whereas an iron rake does not. It wears but does not break. A rake without a tooth is useless; hence steel rakes are not to be recommended for general work.—*Field.*

Rabbit-proof Plants.—In reply to "T. M." (p. 64) allow me to state that the following device has been recommended to me, not precisely as rabbit-proof, but as a most certain means of getting rid of these pests: "Scatter or strew on the ground visited by rabbits small Lentils (*Ervum lens minus*, in French *Lentillons*), which will be greedily eaten by the rabbits, which will then retire to their burrows and will never show themselves again." I cannot warrant the efficacy of the remedy, having never had an opportunity of experimenting with it, but it will be easy to put it to the trial.—M. J. M.



Twice-rooted Pollarded Willow.

THE FLOWER GARDEN.

CULTURE OF LILIES.

MR. C. W. DOD (p. 31) seems rather to expect some notes from me on this season's Lily growing. I have but few to offer, but send them for what they are worth. I would add to his evergreen shrubs in the Lily bed, if he has not already done so, *Skimmia japonica*, the large-flowered variety of *Skimmia oblata*, and *Veronica Traversi*. Our gardens are all warm ones; it is probable that in colder districts somewhat different treatment may be required, and perhaps a more sunny aspect desirable for some species of Lilies; but here the more completely shaded from the sun and sheltered from the wind the better Lilies thrive. We have a good many beds in this garden at the sides of shrubberies and *Rhododendron* beds, completely sheltered from sun and wind, where many species of Lilies are planted. In one of these beds *L. auratum*, *L. pardalinum*, *L. canadense*, *L. californicum*, and *L. Krameri*, undisturbed from last year, have stood the past wintry spring perfectly, and look thoroughly well; while *L. speciosum*, in the same bed, has some shrivelled leaves. In another bed, consisting of *L. Krameri* and *L. speciosum*, all the plants are in perfect health, and promise fine blooms. In other beds *L. superbum* is growing strongly. We have a number of bulbs of *L. superbum* planted in moist parts of a wood in deep black virgin soil. When these are in full shade and shelter, nothing could be finer than their growth; but with the same soil and about the same moisture, where the sun has reached them after some of the spring frosts, they look wretched. Sun after frost has, of course, a most injurious effect on all Lilies. We have one long bed of *L. auratum* in the wood; half of this was in full shade, and the plants are strong and healthy; the other half caught the sun, and are spoilt for this year. The most trying part of the year for Lilies with us was part of last May. Early in the month I went into Perthshire to fish, leaving the Lilies, even in the dampest part of the wood, including a bed of *L. neilgherrense*, quite healthy. On my return, in rather more than three weeks, I found the *L. neilgherrense* all browned, and many of the *L. auratum* injured. This was, I think, as much caused by the excessive wet, which flooded part of the wood, as the frost; as in the dry half of the wood little injury was visible. Mr. Dod considers *L. californicum* a synonym of *L. canadense*. It is nearer *L. pardalinum*, and is distinguished from it by its brighter colour, larger spots, fewer flowers, and has a distinct white shade in the middle of the flower. Mr. Dod does not speak of *L. Krameri*. In suitable situations it is easily grown, and is a lovely Lily in open quarters. We have one large potful, most of the stems having three flowers. It gives one a notion of what *L. Krameri* ought to be.

Heatherbank, Weybridge Heath.

GEORGE F. WILSON.

SWEET WILLIAMS IN WET SEASONS.

NOTWITHSTANDING the dripping skies and cold sunless weather which we have experienced, Sweet Williams maintain an amount of gaiety that is most delightful. They are grand plants in the shape of masses, as those who see beds of them rods in length can testify; but few can realise the marvellous blooming power which single plants possess that have had plenty of space and liberal treatment. A Sweet William producing from forty to fifty heads of bloom is not an uncommon occurrence, but one difficult to equal amongst hardy plants. Every cottager who has a garden grows Sweet Williams, but, as a rule, they do not consist of the best kinds; their trusses of bloom are small and comparatively unattractive. Nevertheless, as a rule, the plants are well grown, for the simple reason that no trouble or skill is needed to grow them. Sown at the right time and planted at the right time, with sufficient room to develop themselves, they can hardly fail to flower well. There is, however, such a wide difference between good flowers and poor ones—between a good strain and a bad one—that it is marvellous such indifferent flowers should yet be grown. Given, however, a packet of good seed, it is well that it should be sown at the proper time, and that is in the month of May, as by that time the soil is warm enough to germinate the seed, and the plants so produced, if planted out into beds or borders about the middle of July, will make fine masses and carry a dozen or more stems the next summer.

If the plants are grown chiefly to obtain trusses of good size specially for exhibition, it is well to sow at midsummer and to put out the young plants at Michaelmas; these will throw all their strength into the production of one stem and head of bloom, which is invariably fine. With a good strain I have obtained in this way heads 9 in. across, and a stand of a dozen such heads would be specially handsome and striking. Show flowers, however, must have better properties than size of truss; added to this should be large, circular, strikingly-marked pips, a fine strain such as Barlow's

selection of Hunt's kinds, producing single flowers as large as a shilling and as perfect in shape. The flowers of Hunt's strain are remarkable for size of pip, very smooth even edges, and the regular character of the markings—a dark coloured ground edged with white being oftentimes as perfect as the edging of a gold-laced Polyanthus. To particularise the various markings would be impossible, because whilst many assume the usual feature of circlets, others will be marbled or of a self colour, but it is enough to say that of 1000 seedlings, perhaps there will be 100 diversely marked flowers, or even more. Hunt's strain, for all show purposes and chiefly because of the size of pip and smoothness of edge of the petals, is invariably regarded as the best.

The Auricula-eyed section presents more diversity than it is easy to describe in writing. The plants have the same robust habit, the heads of bloom are freely produced, and these are as large as Hunt's; it is in the flowers in which the difference is seen, and here smoothness of edge is rarely if ever found. The great charm of the strain is the pure white eye, which, when surrounded by a ground of some bright rich colour, renders the heads of bloom specially attractive. In many cases this rich ground has a white edging, but there is, beyond this special feature of the strain, an infinitude of markings that are as beautiful as they are varied. Some of the richest marked flowers would look well in a stand of blooms at an exhibition, but the absence of the smooth edge might unfavourably influence the judges.

In masses for summer decoration Sweet Williams are especially attractive. They produce over a large surface an even head of flower, and this is so varied as to at once arrest attention. A. D.

ALPINE PLANTS AT HOME.

DURING an excursion on the Schneeberg (Austrian Alps) for the purpose of collecting Alpine plants for our newly-constructed rockery, we collected various plants, of which some notes may be interesting. The majority of the plants were found at elevations of from 3000 ft. to 6000 ft.; at this height considerable masses of snow are to be met with, even in summer. In moist, cool, shady situations near the snow I found great masses of *Soldanella minima*, flowering in the greatest profusion. At another place, close to the snow, I found the whole ground carpeted with *Primula minima* in flower. Homogyne alpina is to be found in great masses everywhere, intermixed with many other plants. Large tufts of *Armeria alpina* were very conspicuous. I also found two species of *Viola*, one with large dark blue flowers found growing in great masses, the other with little yellow flowers, rather rare. *Silene acaulis* grows in great masses, associated with *Gentiana acaulis* and *G. verna*, the last one of the most brilliant of Alpine flowers. *Ranunculus alpestris*, a diminutive species, was still in flower. In one very moist place I found *Pinguicula vulgaris*. *Alsine stricta*, now in flower, is a real gem amongst Alpines; its delicate white blossoms, produced in abundance 2 in. or so above its shining green leaves, make it an interesting plant for rockeries; I found it on rather dry places, much exposed to the sun. Of *Campanula alpina* I found only a few plants about 5 in. high, bearing deep blue flowers. *Bellidistrum Michelli* resembles our common Daisy as far as the flowers are concerned, but they are much larger. *Pedicularis rosea*, which I found in flower, is not higher than 3 in., and its leaves being of a purple hue have a singular appearance. *Azalea procumbens* is growing there in great masses, its creeping stems covering slopes as densely as Moss, and finely in blossom. Of *Lycopodium Selago* I found only a few small plants. Amongst others, I collected *Biscutella lavigata*, *Bartsia alpina*, *Primula spectabilis*, *Saxifraga mutata*, *S. muscoides*, *Geum montanum*, *Ranunculus* (two species), *Salix herbacea*, *Polygala amara*, and a species of *Orchis*, most probably *O. Trannsteineri*. I am interested to know how these plants will succeed on our rockery. At present we have potted them, and will keep them in pots until they get a little established before being planted out.

Lazenburg.

LOUIS KROPATSCHE.

Cyrtanthus brachypetalum.—This is an apparently rare species of great merit, of which I do not recollect having seen any notice whatever. It is probably one of the good things collected by Mr. Cooper at the Cape, but on that point I may need correction. The flower-scape grows about 10 in. high, is of a glaucous purplish hue, and bears at its summit a nodding cluster of tubular flowers of a light orange colour, each flower being about 2 in. in length, with the six divisions of the limb very short and broad. It continues in bloom for a fortnight or more. The foliage is rather scanty, consisting in my specimen of two narrowly linear-lanceolate leaves, about as long as the scape. The species seems easily cultivated, and will certainly become popular when sufficiently multiplied.—W. T. I.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Hardy Orchids.—Many of these are now very beautiful in cool, moist places in gardens as well as in their native habitats. *Orchis maculata præcox*, with its crimson purple spires, and the different forms of *O. latifolia*, *O. Morio*, and *O. pyramidalis* are amongst the most showy. *Cypripedium spectabile*, planted out in a moist peat bed behind a north wall and sheltered from the wind when in bloom, is now in lovely condition. I have also grown it in common garden earth surfaced with *Hydrocotyle vulgaris*, a way in which it forms a good window plant. The best place for it, however, is a sheltered peat bed where it may become established permanently.—F. W. B.

Flame Flowers Picturesquely Grouped.—These plants have by their great beauty and vigour shown their own merits so eloquently that there is no need for us to say a word in their favour. There may be other kinds to add to our collections, and rare ones to make more common, but otherwise *Tritomas*, or Flame Flowers as they may be aptly called, have become accepted as among the treasures of our collections of hardy flowers. There is, however, something still to be done as regards their arrangement. They are

and some perfectly double. We have now some fifty plants in bloom each varying from 3 ft. to 9 ft. high, and furnished with from four to forty stems. Being so tall they are seen at a long distance off, planted as they are at the back of a herbaceous border. The large amount of rain which we are still having appears to be what they enjoy, but they dislike wind. It is to be regretted that they are not more grown than they are, for it is seldom one sees anything like a collection of them. As regards culture they should have liberal treatment, slugs should be kept from them, and they should be safely secured against wind. Thus managed they will continue in bloom from two to three months.—J. C. F.

A Pretty, but Troublesome Aquatic.—The *Ranunculus aquatilis* has been frequently recommended as a pretty aquatic for ponds and lakes, and it deserves all that can be said in its favour in that respect, for it produces sheets of pretty flowers early in summer, but I would not advise any one to plant it in a pond which it is desired to keep free from weeds as it is almost as troublesome as the "American Water-weed." Some years ago a small patch of it appeared in a reservoir here which supplies the establishment with soft water. Where it came from I never learned, but it had not been



Flame-flower on margin of Lake Longleat, 1873.

occasionally planted in excess, so as to neutralise the good effect they might otherwise produce, and they, like many other flowers, have suffered from being, like soldiers, put in straight lines and in other geometrical formations. It is only where a fine plant or group of plants is seen in some green glade that the true beauty of the Flame Flower is seen, especially at some little distance off. Although not exactly belonging to the very free-growing and extremely hardy genera of plants recommended for the wild garden, they are so free in many soils that they might with confidence be recommended for that purpose, and our sketch shows a picturesque group of them planted in this way. It would be delightful if people having country seats would study more the effects to be realised from certain types of plants. For instance, a well and tastefully placed group of these Flame Flowers would for a long time in autumn be a most effective feature in the landscape of a country seat; and there are various other plants to which the same remark applies, though perhaps to none better than these in the later months of the year.

Larkspurs.—It is impossible to speak too highly of these good and useful plants, which are valuable even in a cut state for filling vases and for similar purposes. They produce stems from 3 ft. to 9 ft. high, clothed with green leaves and with flowers for a distance of from 2 ft. to 3 ft. Many of them are single, others semi-double,

seen near the place before. The first year it was not interfered with, and the next year it nearly filled the pond and had to be cleared out; but the following summer it again appeared and soon quite filled the pond, and had to be cleared out by men on rafts at no little expense and trouble. This went on for several years till it was at last deemed advisable to clean the pond out and cement it all over. This was last year, and up to this date the *Ranunculus* has not appeared, but we do not feel sure of it yet. It propagates itself from seed, and when it finds congenial quarters it will cover acres in a short time. The leaves and flowers are nothing to the roots, which float in the water forming dense masses and entail the most part of the labour in clearing; but this applies to deep water chiefly. Our coachman also made the discovery that the plant communicated a dye to the water in which it grew. Wishing to tighten the tier of one of his carriage wheels he plunged it in the pond for a few days. It was painted blue and white, and when it came out it was discovered that the white had changed to a pale yellow colour which no amount of scrubbing would remove. This dye also renders the water unsuitable for laundry purposes.—J. S. W.

Veronica Traversi.—Like your correspondent R. A. J. (p. 55) I find this New Zealand Speedwell to be one of the handsomest of out-door plants, especially when planted in an open place. It has,

too, withstood the past winter quite uninjured, though in an exposed situation. The finest specimen of it that I have yet seen is now in full beauty in the herbaceous ground at Kew, where it forms a round symmetrical head quite 4 ft. across and a yard high.—W. G.

Bouquet Pink.—This is a double-flowered variety of *Dianthus petraeus*, a small-fringed snow-white Pink and sweet scented. It is an abundant bloomer, and I believe but little known.—T. WILLIAMS, *Ormskirk*.

THE KITCHEN GARDEN.

GARDEN FOOD.

SIR HENRY THOMPSON has two extremely interesting and useful articles on food and feeding in the two last numbers of the "Nineteenth Century," from which we extract a few of the passages referring to the garden food portion of the question.

"I have not hesitated to say that Englishmen generally have adopted a diet adapted for a somewhat more northerly latitude than that which they occupy; that the cost of their food is therefore far greater than it need be, and that much of their peculiar forms of indigestion and resulting chronic disease is another necessary consequence of the same error. They consume too much animal food, particularly the flesh of cattle. For all who are occupied with severe and continuous mechanical labour, a mixed diet, of which cereals and legumes form a large portion, and meat, fish, eggs, and milk form a moderate proportion, is more nutritious and wholesome than chiefly animal food. For those whose labour is chiefly mental, and whose muscular exercise is inconsiderable, still less of concentrated nitrogenous food is desirable. A liberal supply of cereals and legumes, with fish, and flesh in its lighter forms, will better sustain such activity, than large portions of butcher's meat twice or thrice a day. These things being so, a consideration of no small concern arises in relation to the economical management of the national resources. For it is a fair computation that every acre of land devoted to the production of meat is capable of becoming the source of three or four times the amount of produce of equivalent value as food if devoted to the production of grain. In other words, a given area of land cropped with cereals and legumes will support a population more than three times as numerous as that which can be sustained on the same land devoted to the growth of cattle. Moreover, the corn land will produce, almost without extra cost, a considerable quantity of animal food, in the form of pigs and poultry, from the offal or coarser parts of vegetable produce which is unsuitable for human consumption.

"Thus this country purchases every year a large and increasing quantity of corn and flour from foreign countries, while more of our own land is yearly devoted to grazing purposes. The value of corn and flour imported by Great Britain in 1877 was no less than £63,536,322, while in 1875 it was only just over £53,000,000. The increased import during the last thirty-two years is well exhibited in the following extract: 'In 1846 the imports of corn and flour amounted 17 lb. weight per head of population; in 1855 they had risen to 70 lb. per head; and in 1865 to 93 lb. weight per head of population. Finally, in 1877 the imports of corn and flour amounted to 170 lb. weight per head of population in the United Kingdom.*"

*

"The supply of garden produce ought in this country to be singularly plentiful; and, owing to the unrivalled means of transport, all common vegetables ought to be obtained fresh in every part of London. The contrary, however, is unhappily the fact. It is a matter of extreme regret that vege-

tables, dried and compressed after a modern method, should be so much used as they are for soup by hotel-keepers and other caterers for the public. Unquestionably useful as these dried products are on board ship and to travellers camping out, to employ them at home, when fresh can be had, is the result of sheer indolence or of gross ignorance. All the finest qualities of scent and flavour, with some of the fresh juices, are lost in the drying process; and the infusions of preserved vegetables no more resemble a freshly-made odoriferous soup, than a cup of that thick, brown, odourless, insipid mixture, consisting of some bottled 'essence' dissolved in hot water, and now supplied as coffee at most railway stations and hotels in this country, resembles the recently-made infusion of the freshly-roasted berry. It says little for the taste of our countrymen that such imperfect imitations are so generally tolerated without complaint.

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"On salad so much has been written that one might suppose, as of many other culinary productions, that to make a good one was the result of some difficult and complicated process, instead of being simple and easy to a degree. The materials must be secured fresh, are not to be too numerous and diverse, must be well cleansed and washed without handling, and all water removed as far as possible. It should be made by the hostess, or by some member of the family, immediately before the meal, and be kept cool until wanted. Very few servants can be trusted to execute the simple details involved in cross-cutting the Lettuce, Endive, or what not, but two or three times in a roomy salad-bowl; in placing one saltspoonful of salt and half that quantity of pepper in a tablespoon, which is to be filled three times consecutively with the best fresh Olive oil, stirring each briskly until the condiments have been thoroughly mixed, and at the same time distributed over the salad. This is next to be tossed well, but lightly, until every portion glistens, scattering meantime a little finely-chopped fresh Tarragon and Chervil, with a few atoms of Chives over the whole. Lastly, but only immediately before serving, one small tablespoonful of mild French vinegar is to be sprinkled over all, followed by another tossing of the salad.* The uncooked Tomato, itself the prince of salads, may be sliced and similarly treated for separate service, or added to the former, equally for taste and appearance. Cold boiled Asparagus served with a *mayonnaise* forms a dish, of its kind not to be surpassed. At present ranking, when the quality is fine, as an expensive luxury, there is no reason why, with the improved methods of cultivating this delicious and wholesome vegetable, it should not be produced in great abundance, and for less than half its present price. As to the manifold green stuffs which, changing with the season, may be presented as salad—their name is legion; and their choice must be left to the eater's judgment, fancy, and digestion, all of which vary greatly.

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"Very unsatisfactory is the supply of vegetable and dairy produce to our great city, particularly of the former. It must be confessed that our market at Covent Garden, in relation to capabilities for effective distribution of fresh vegetables, &c., would disgrace a town one-fifth of the size of London. Nineteen-twentieths of its inhabitants cannot obtain fresh green food on any terms, and those who succeed pay an exorbitant price. I think I am right in saying that a really new-laid egg is a luxury which a millionaire can scarcely ensure by purchase; he may keep fowls and with due care may obtain it, not otherwise. The great staple of our bread, commonly called 'baker's bread,' is unpalatable and indigestible; and I sup-

* "Statesman's Year Book, 1879, p. 253.

* A salad for five or six persons is supposed.

pose no thoughtful or prudent consumer would, unless compelled, eat it habitually—used as it nevertheless is by the great majority of the inhabitants of this great city—any more than he would select a steak from the coarse beef whose proper destination is the stock-pot. Let any one compare the facilities which exist in most foreign towns for obtaining the three important articles of diet just named, with the parallel conditions afforded by London, and the inferiority of the latter will be so manifest as to become matter of humiliation to an Englishman. I do not raise any question of comparison between our own markets and the Halles Centrales of Paris, covering as they do nearly five acres of closely utilised space, with enormous vaults beneath, in direct communication by tramroad with the railways; nor of the well-stocked Marché St. Honoré, and others of less note. To many among the thousands of tourists who frequent the public buildings of Paris, an early morning survey of the fish, flesh, dairy produce, vegetables, fruit, and flowers which the Halles Centrales display, and the scarcely less remarkable exhibition of Parisian and provincial life brought together there, present one of the most interesting and truly foreign spectacles which the city affords.

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"To the long list of needed reforms I have ventured to advocate in connection with this subject, I must add the want of ample and accessible markets in various parts of London for what is known as country produce. I do this not only in the interest of the millions who, like myself, are compelled to seek their food within the limits of Cockayne, but also in the interest of our country gardeners and housewives, who ought to be able to supply us with poultry, vegetables, and eggs better than the gardeners and housewives of France, on whom at present we so largely depend. We may well be grateful to these small cultivators, who, by their industry and energy, supply our deficiencies; but the fact that they do so does not redound to the credit of our countrymen."

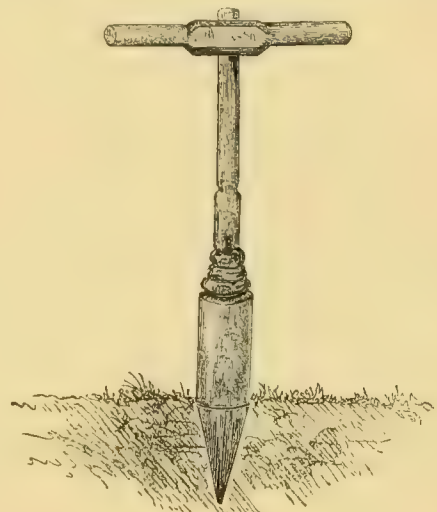
NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

The Potato Disease.—This sad visitation is now affecting early sorts of Potatoes generally, and a continuance of the present weather can but lead to its wholesale appearance amongst all kinds and in all parts of the kingdom. As usual, it presents itself first in those kinds that are most matured, and then spreads over all breadths alike until not a green leaf is left. Added to a fruitless year, this disease will be a heavy blow to market gardeners and others who grow Potatoes on a large scale. It seems useless to hope for better weather, as the summer is passing away so fast that even should it come it will be too late to benefit many things. The disease would appear to have struck Potatoes on the Continent even before it has appeared here, and if the crops are as largely affected there as has been stated in the daily papers, there will be but few foreign Potatoes to import. This fact should induce importers to look to America, where they have had some hot weather, and where, perchance, may be found a fairly healthy crop. But the regulations regarding the Colorado Potato Beetle may interfere with our imports from that quarter. Should prices reach the high figure during the winter that is anticipated, there will be a great outcry if it is found that the American crop is practically excluded from our markets.—A. D.

Planting Asparagus in July.—We are just now engaged in planting-out Asparagus, and I am of opinion that summer planting will one day become a common practice. The system is inexpensive, and there is no trouble in filling up blanks, as in the case of spring planting. Seeds that were sown last March in an early situation are now good plants. We are not nearly so particular as we used to be about soil; we however choose a good situation where the soil is deepest—not necessarily heavy—but of a generous open character. We plant in lines instead of in beds, as we used to do, in order to keep with the times as regards size, but in small gardens the bed system of planting will have to be retained for the sake of economising space. I have planted as late as August with plants from 18 in. to 2 ft. high, rather than defer planting till the following

spring. It is the deep trenching, the purchase of old plants, and the planting of them in cold spring weather, that ruins the prospects of many a well-meaning cultivator. Where the subsoil is bad, that is to say, where it is either too heavy or, it may be, gravelly and poor, the best way is to add to the surface a few inches deep of good open compost, and mulch and feed the plants regularly during the growing season. Those who manure heavily in winter, expecting to reap the benefit the following season, are committing an unconscious error. The growing season is the proper time to invigorate the roots, which should have a good run, as they are gross feeders and soon exhaust the soil in a limited root-space. And, again, climate has a good deal to do with fine heads of Asparagus as well as soil and other conditions. Take, for example, the acres of Asparagus that are grown along the Formby coast between Liverpool and Southport, where the finest produce is grown at comparatively little expense. The open soil and sea air act like magic upon the crop.—*Gardeners' Chronicle*.

Potato Dibber.—For planting Potatoes on light well-worked land an implement like that of which the annexed is an illustration is extremely convenient. Some London market gardeners plough in their potatoes to save labour, but where they have to be planted as an after crop, the land being already occupied with cabbage or other green produce, this implement is frequently employed with advan-



Dibber used in Market Gardens.

tage. A man dibbles the holes and boys or women drop in the seed tubers and then cover them in with a hoe. A modification of this contrivance has been used by us as a pot plunger, and also for planting out decorative plants in the flower garden for the summer display. Any handy man or amateur may make it for himself, or a carpenter could produce it for a trifling sum.—B.

AMERICAN NOTES.

Bearing Years of Orchards.—Mr. Johnson stated at a meeting of the Western New York Farmers' Club that last year (which was an abundant year all through the country) eight acres of his twelve-acre orchard were loaded with fruit, and from some cause the other four acres were barren. The trees on these four acres are now bearing profusely. Mr. Pierce said that last year just as the blossom buds were opening and promising a heavy crop, a severe hail storm entirely destroyed the whole. This year the trees are loaded. The question occurs what is the best way to remove the crop of blossoms during the abundant year in order that plenty of fruit may be had the "off" year.

Early Peaches.—The many new varieties of the Peach which have originated within a few years, ripening their fruit two or three weeks earlier than any known twenty years ago, are beginning to make a distinct change in the markets. The Alexander was ripe in Cherokee county, Texas, on the 9th of May, and within a few days of that date supplies were received in New York from the same latitude in Georgia. The Gulf States, when supplied with bearing orchards, will doubtless furnish this fruit about the 1st of May, and increased facilities for conveyance north will give us ripe Peaches so

early that we can enjoy them, in connection with our own, for at least six months in the year.

Raspberries in the West.—Mr. Husmann gives in the *Rural World* his experience with the newer Raspberries in Missouri. The Turner, Thwack, and Brandywine have withstood the winter without injury, and he congratulates cultivators that at last a red Raspberry has been secured in the Turner that is hardier than the Blackcaps.

Yosemite Plum.—Mr. Isaac Hicks, of Long Island, states that this Plum, found among the Sierras of California, is a profuse bearer of medium-sized fruit, and adds that it seems Curculio-proof. He saw many of the Plums with the crescent mark, but none had penetrated. The fruit is said to be somewhat astringent, and we suspect that it is not of the highest flavour.

Strawberries in New Jersey.—The Strawberry season is about over with us. We had dry, hot weather just before the berries began to ripen, and after they had begun to ripen it became excessively wet, so that they went into market in bad order. Kentucky gave an excellent crop; Charles Downing did very well, having much less of the leaf blight this year than usual. The Albany Seedling is not much cultivated with us; being near market, we can manage softer varieties, but where they were cultivated the crop was generally poor. Crescent was quite defective, except where it was well mixed with some staminate variety. It seems to be well established now that to ensure a good crop some staminate sort must be near the Crescent. The largest and handsomest berries we had this year were from Sharpless plants, set last September; the yield was not large, but the quality was excellent. Decidedly the best Strawberry we have had here, all things considered, was Miner's Great Prolific. It is thoroughly healthy and vigorous; its berries are large, handsome, of good quality, and very productive. Its season of ripening is about the same as that of Charles Downing.

Pogonia ophioglossoides.—This is generally found growing in moist localities—the thick, fibrous roots being most luxuriant when growing in good live Sphagnum, situated so that it is neither too wet nor too dry. In growing this beautiful plant, I found it to succeed best in half-decayed Sphagnum, mixed with charcoal to keep it sweet. When in flower it should not experience any approach to dryness, and the atmosphere of the house should not be very dry, or else red spider is sure to attack the foliage, which greatly mars the following year's growth and flower.

Arethusa bulbosa.—The flowers of this fine Orchid appear before the leaves. They are of a bright rose-purple, varying in the shade of colour according to the position and locality in which the plant is growing. It is much rarer than the Pogonia, but I have met with it in some particular localities in considerable quantities. In cultivation it requires the same treatment as the Pogonia. Care must be taken to get the leaf as well matured as possible. Coming as it does after the flower, the leaf is apt to be neglected. A good outdoor position for growing these Orchids is a shady, moist spot having a northern exposure—using for soil a mixture of well-rotted manure and Sphagnum. During winter, the bed in which it grows is better to be protected with some rough mulch, for it appears that when taken from its moist home and placed in higher ground, it loses its extremely hardy nature. Upon no consideration, however, should it be treated as a tender plant, or failure is sure to be the result.

Lady's Slippers.—The different kinds of *Cypripedium* found wild throughout the country are remarkably pretty. *C. spectabile* has scarcely a rival in the long list of species in this family. It is found wild in bogs throughout the Northern States, and succeeds well in cultivation. It requires a soil composed of good fibrous peat, and, when sending up its flower spikes, plenty of moisture. I have found it do well when treated as a greenhouse plant, by withholding water when at rest, but giving sufficient to keep the roots in a healthy condition. *C. acaule* requires a rather shady position, and succeeds in a soil composed of fibrous loam and good fresh leaf-mould.—*Country Gentleman*.

Birds'-nests in Plant Houses.—Some kinds of birds seem fond of building their nests in glass houses. We frequently have robins' and wrens' nests built on the hot-water pipes, and being rather considered friends than foes they are allowed to remain unmolested, and generally hatch their brood in safety. We have at present a pair of wagtails that are bringing up a second brood in hanging baskets in the conservatory. It is singular how soon they become familiar with the men at work close by them, and how busily they pick up any insects which they find amongst the plants.—JAMES GROOM, *Linton Park, Maidstone*.

GARDEN DESTROYERS.

THE HEART AND DART MOTH.

(*AGROTIS EXCLAMATIONIS*.)

FARMERS are perhaps as a rule more annoyed by the caterpillars of this moth, which are very destructive to turnip crops, than gardeners, but the latter are also frequently troubled by them in the flower as well as in the kitchen garden. They, as well as the caterpillars of the dart moth (described in *THE GARDEN* of Jan. 4, 1879), are often known by the name of the grub. This insect is very common, and may be found in nearly all parts of England, and is also generally distributed over the rest of Europe. Turnip roots appear to be their favourite food, and at times several may be found feeding on one root, which they soon damage by gnawing greatholes in it. Young plants they sometimes quite destroy by eating the root right through, just below the crown; Radishes, Lettuces, Endive, Cabbages, and Artichokes, are also frequently attacked by them in the same manner. In the flower garden, China Asters and Carnations, are usually their victims. These caterpillars cannot climb well, although they can walk with great rapidity, and as soon as they have demolished one plant at once travel off to another perhaps some yards off, but they have been known before they have nearly attained their full size to hide in the blossoms of Carnations, and devour their petals and ovaries. As these caterpillars are night feeders, and remain hidden in the earth, or under stones and clods of earth, during the day, they are seldom seen unless carefully looked for, which makes it all the more difficult to take any steps for their destruction. It is evident that nothing applied to the surface of the soil during the day would be likely to kill them in any numbers; but certain applications may be used which will render the plants distasteful to them. If the plants are well watered with salt and water in the proportion of $\frac{1}{4}$ oz. of salt to 1 quart of water, the caterpillars will be driven away; but if the salt gets washed off the plants they are liable to be again attacked. Soot or lime spread very thickly on the ground, and well dug in, or laid in a ring round each plant, will keep them from attacking such plants. Watering well with soap and water is recommended as being very effectual in bringing the caterpillars to the surface, when they should at once be destroyed; hand picking is perhaps the most successful plan. Search should be made for them under all stones and clods of earth, and if possible the earth near any plant which has been attacked should be removed, when the caterpillar will generally be found near the roots; this may be done during the daytime, and at night the plants should be carefully looked over with the help of a lantern. In its other states this insect is even more difficult to destroy, as the eggs are very small, and are laid in the earth; it would appear to be impossible to do anything to destroy them, particularly as they are generally laid near growing crops, except encourage birds and insects which might feed on them. In the chrysalis state they are some inches below the surface of the soil, and no artificial means which we can use, short of turning up the earth and collecting them, can harm them. Their deadly enemies the moles destroy great numbers of them; moles, however, cannot be encouraged in a garden, although the amount of good they do by destroying various grubs and chrysalides can hardly be over-estimated. The moths lay their eggs, about the end of June or the beginning of July, in the earth near some suitable plant, which the young caterpillars at once begin to attack; they continue feeding until the winter, when they bury themselves at the roots of the plants, and generally pass the cold weather in a semi-torpid condition surrounded by a ball of earth, which they form around themselves as a protection, some 2 in. or 3 in. below the surface of the ground. In the early spring they reappear and begin to feed again; at the end of May, or the beginning of June, they re-enter the earth and become chrysalides, in which state they remain for about a month. The moths measure from $1\frac{1}{2}$ in. to $1\frac{3}{4}$ in. across the wings when fully expanded. The males may be distinguished from the females by their antennae, which are thicker and finely toothed, whilst those of the females are very fine and smooth; the lower wings of the females are darker than those of the males. In both sexes the thorax is of yellowish drab, with a dark transverse band or spot on the edge in front. The general colour of the front wings is the same as that of the thorax, but their upper edge is somewhat darker, and ornamented with various darker and paler markings. Near the side margin on each



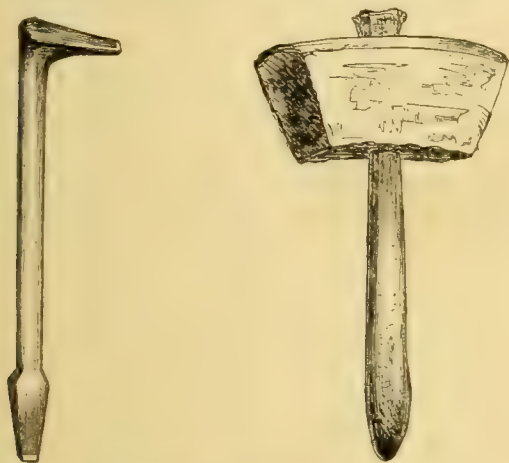
The Heart and Dart Moth
(*Agrotis exclamacionis*).

mended as being very effectual in bringing the caterpillars to the surface, when they should at once be destroyed; hand picking is perhaps the most successful plan. Search should be made for them under all stones and clods of earth, and if possible the earth near any plant which has been attacked should be removed, when the caterpillar will generally be found near the roots; this may be done during the daytime, and at night the plants should be carefully looked over with the help of a lantern. In its other states this insect is even more difficult to destroy, as the eggs are very small, and are laid in the earth; it would appear to be impossible to do anything to destroy them, particularly as they are generally laid near growing crops, except encourage birds and insects which might feed on them. In the chrysalis state they are some inches below the surface of the soil, and no artificial means which we can use, short of turning up the earth and collecting them, can harm them. Their deadly enemies the moles destroy great numbers of them; moles, however, cannot be encouraged in a garden, although the amount of good they do by destroying various grubs and chrysalides can hardly be over-estimated. The moths lay their eggs, about the end of June or the beginning of July, in the earth near some suitable plant, which the young caterpillars at once begin to attack; they continue feeding until the winter, when they bury themselves at the roots of the plants, and generally pass the cold weather in a semi-torpid condition surrounded by a ball of earth, which they form around themselves as a protection, some 2 in. or 3 in. below the surface of the ground. In the early spring they reappear and begin to feed again; at the end of May, or the beginning of June, they re-enter the earth and become chrysalides, in which state they remain for about a month. The moths measure from $1\frac{1}{2}$ in. to $1\frac{3}{4}$ in. across the wings when fully expanded. The males may be distinguished from the females by their antennae, which are thicker and finely toothed, whilst those of the females are very fine and smooth; the lower wings of the females are darker than those of the males. In both sexes the thorax is of yellowish drab, with a dark transverse band or spot on the edge in front. The general colour of the front wings is the same as that of the thorax, but their upper edge is somewhat darker, and ornamented with various darker and paler markings. Near the side margin on each

wing is a paler waved band, and towards the centre of the wings are two darker marks, one of which is supposed to resemble a heart; the other, which is nearer the base is long pointed and placed longitudinally and is imagined to be like a dart or note of exclamation. From these markings the name of the insect is derived. Between the heart-shaped spot and the base of the wing is a dark ring with a dark dot in the centre. The lower wings are whitish in the male, with the upper margin and nervules brownish, and dark brown in the female. The caterpillars are about $1\frac{1}{2}$ in. long when full grown; their heads are brown, with rather darker mouths; and their bodies are of a pale dull violet, or lilac colour, the back being paler with a tinge of yellow, on either side of this stripe is a darker indistinct band; down the middle of the back is a double brownish line, which is sometimes hardly to be distinguished; the under side is greenish white. The first segment of the bodies is somewhat horny and brownish, with dark spots; each of the remaining segments have on the back four small black tubercles arranged in pairs, and others on the sides, each tubercle bears a fine hair. There are eight pairs of legs, one on each of the first three, the sixth, seventh, eighth, ninth, and last joints. The chrysalides are brown.

G. S. S.

Unpacking Plant Cases and Boxes.—The unpacking of nailed-down cases is necessary work in every garden, and although a really handy man will extemporise tools for the purpose, yet it is often most desirable and really the most economical plan in the end



Implements for opening packing cases.

to have implements specially made for the purpose. Amongst the tools used in Her Majesty's Customs Department for the opening of cases and boxes from abroad we recently noted the mallet and chisel now illustrated as being those most used by the officials. An ordinary carpenter's wooden mallet costs but little, and any blacksmith will fashion the other implement, which is of iron or steel, and from 15 in. to 18 in. in length. It is a combination of the cold chisel, lever, and wedge, and may even be used as a screw-driver if ground moderately sharp at the lower end.—B.

THE WALTHAM CROSS NURSERIES.

ALTHOUGH the present season has been so generally unfavourable for Roses, yet there is much that will well repay a visit to Messrs. William Paul & Son's nurseries at Waltham Cross, where the primary consideration is rose culture. Here may be found not only all the popular varieties and choice novelties in cultivation, but fine old kinds of every description, such as the Moss, Provence, Damask, and a host of others, for which happily a taste still lingers. Every method of culture and propagation too is here fully demonstrated, and it is a source of much interest to observe the preference which some varieties have for certain particular methods of treatment. One of the leading features is an avenue several hundred yards in length, planted on each side with rows of Conifers, which apparently have been planted in good material, judging by the thriving specimens of such beautiful kinds as *Picea lasiocarpa*, *P. nobilis*, *P. Nordmannia*, *P. Pinsapa*, various species of *Pinus*, *Cupressus*, *Juniperus*, and others. As a foreground to these there is a series of circular beds consisting of various kinds of Roses pegged down so as to form a compact mass. This is a very desirable mode of treatment and one that should be more exten-

sively practised, as it is highly conducive to productiveness. The beautiful Tea-scented Safrano, for instance, is an admirable bedding kind, as are also others of a like constitution. The old sorts, too, make a fine display grown in this way. The most conspicuous kinds here were: Village Maid, Ohl, Cynthia, Madeleine, Countess Muranais, &c. The main bulk of the collection is, of course, grown as standards, and these occupy a vast area. Amongst the newest and most noteworthy of those in flower may be mentioned the beautiful Duchess of Bedford, a Hybrid Perpetual of rare merit, and one which well answers to its description, being of a dazzling light scarlet-crimson, perfectly globular in form, and a vigorous grower. The Countess of Rosebery is another superb novelty which will doubtless be appreciated; its colour is a brilliant carmine, and the form as perfect as we have met with. Boieldieu, Alfred K. Williams, Princess Charlotte de Tremouille, Souvenir d'Adolphe Thiers, Madame Gabriel Luizet, Grand Duc Nicholas, and Mrs. Laxton comprise some of the best of the newer kinds, though such sterling varieties as May Quennell, Queen of Waltham, Magna Charta, Glory of Waltham, Red Dragon, Princess Christian, and many others, still hold their own against all new comers. The nursery for seedlings contains many new claimants for public favour, and though they are as yet unnamed, we consider that several are decided improvements on existing varieties in their respective tints, and we are pleased to see amongst them the nearest approach to a pure scarlet that we know of, which will be a great acquisition. Tea-scented Roses are also grown in a variety of ways, though but few were in flower in the form of open-air standards. Several roomy houses are devoted to an extensive collection in pots for forcing purposes, consisting of the best varieties adapted for that purpose, such as Isabella Sprunt, Maréchal Niel, Climbing Devonensis, Safrano, Madame Berard, Niphetos, and others. Hybrid Perpetuals are also largely grown under pot culture, but these are all now plunged in open-air quarters.

Although, as has been stated, Rose culture is the primary consideration, this nursery is well stocked with a large collection of all kinds of fruit trees in various stages of growth; also with Conifers, and trees and shrubs, both evergreen and deciduous. Amongst these the golden-leaved Elder and Catalpa and the golden-leaved form of *Spiraea opulifolia*, together with other variegated kinds, were remarkably effective, and compensated in some measure for the paucity of bloom amongst trees and shrubs generally at this time of the year. The golden-leaved varieties of Yew, too, are very handsome, especially the erect-growing Irish variety. An extensive collection of Camellias of all sizes in pots placed in the open air in a partially-shaded situation show, by their healthful appearance, that such treatment suits them, for more vigorous plants we seldom met with. These are wintered in spacious houses, which are constructed so as to admit of all possible light at the season when they most require it.

W. G.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JULY 22.

THE following plants were awarded first-class certificates on this occasion, viz.:—

Pescatorea Klabochorum (Lawrence).—A beautiful Orchid, resembling in form and size *Bollea celestis*. The colour of the flowers is a pure waxy white, with the tips of the segments rich plum. The lip is of the same colour, surmounted by a golden crest.

Iris Kämpferi var. Imperatrix (Elwes).—A very fine variety raised by Herr Max Leichtlin, of Baden-Baden. Its flowers are very large, being nearly 7 in. across, with broad segments pure white and crimped at the edges, and tinged with deep violet.

Sarracenia atro-sanguinea (Bull).—A handsome variety of *S. flava*, having the upper part of the lid of the pitcher-like leaves of a deep red colour and conspicuously netted below with the same colour.

Tradescantia multicolor (Bull).—A distinct species, similar in habit to *T. zebrina*. Its leaves are beautifully variegated with various shades of green, purple, and a creamy-white tint, the whole surface shining with a silvery lustre.

Bromelia Binoti (Williams).—One of the most ornamental of all the cultivated Bromeliads. Its leaves, which are from 3 ft. to 5 ft. long, beset with spines at the margins, assume a gracefully-drooping habit. The colour of the older leaves is a mixture of red and green, whilst the younger foliage is bright red without the suffusion of green.

Coleus James Barnshaw (Bull).—A variety of robust habit, having rather small and finely-toothed foliage, quaintly marked with various shades of golden and crimson.

Coleus Dr. Brushfield (Lloyd).—Also a vigorous-growing kind with large leaves, coarsely toothed on the edges, and variegated with gold, green, and crimson colours.

Second-class Certificates were awarded to:—

Carnation The Queen (Turner).—A pretty variety with blossoms of good size and form, pure white with faint pencillings of pink.

Rose Isabella Ward (Ward).—A seedling variety said to have been obtained by crossing Baronesse Rothschild and Sombreuil. It is a strong grower, and blooms well in autumn. A desirable variety, and one which probably would be better in a more favourable season.

Mr. Elwes showed an interesting collection of cut flowers, consisting of *Calochorti*, *Brodiaeas*, various kinds of *Alliums*, *Gladioli*, of which some were remarkably fine in colour, *Milla laxa*, *Murrayana*, and the new *M. longipes*. A hardy species of *Bomarea*, probably *acutifolia*, was also shown from the same garden; it has small flowers of a crimson hue with a central dark blotch. From Sir Trevor Lawrence came a superb example of *Odontoglossum coronarium* with a cylindrical head of blossoms 13 in. long and 8 in. through; to this a cultural commendation was given. From the same collection came also a small plant of *Dendrobium formosum* var. *giganteum* bearing very large ivory white blossoms from the base of the stems, whereas usually they are produced at the points. Mr. Bull contributed, in addition to the plants enumerated above, a flowering example of the beautiful *Dipladenia Brearleyana*, *Sarracenia reticulata flava ornata*, a fine unspotted form of *Lilium auratum* named *virginialis*, *L. Leichtlini*, *Browni*, and *neilgherrense*, several new varieties of *Coleus*, the brilliant *Hæmanthus Kalbreyeri*, and a singular form of *Echeveria metallica*, the leaves of which bear numerous wart-like excrescences. It is aptly named *E. carunculata*. The same exhibitor also showed a plant of the curious Bull's-horn *Acacia* (*A. sphaerocephala*), furnished with its horn-like, spiny stipules. From the Victoria Nurseries came a beautiful *Anthurium* named *Walnewi*, with large cordate leaves of a metallic bronzy-green lustre; also *Adiantum mundulum* and *dissectum*, two desirable novelties both dwarf in growth. A group of well-grown plants of *Coleus* came from Mr. R. Lloyd, Brookwood, amongst which were some interesting new kinds. Mr. Cannell, Swanley, showed an admirable collection of cut blooms of *Verbenas*, comprising several new seedling and named kinds of great beauty; also a collection of flowers and tuberous-rooted *Begonias*, *Fuchsias*, and *Sweet Williams*. A group of cut blooms of *Picotees*, *Pinks*, and *Carnations* were sent by Mr. H. Hooper, Bath. From the Slough Nurseries came a fine group of cut blooms of show *Pelargoniums*, comprising the newest kinds, also a few plants of the beautiful Tree *Carnation A. Alegatière*, with its fine bright scarlet blooms. Messrs. Veitch & Sons showed the double-flowered variety of *Begonia Veitchi*, a handsome kind partaking of the habit of the single-flowered variety, and with well-formed blooms of a deep cerise tint. The same exhibitors also contributed a numerous collection of cut blooms of *Roses*, comprising most of the leading varieties, in fine condition. A similar contribution came from Messrs. W. Paul & Son, Waltham Cross, amongst which were the following new varieties, viz., *Midnight*, with flowers of a deep maroon colour, of good form; *Masterpiece*, *Lord Bacon*, *Pride of Waltham*, *Marchioness of Bute*, and *Crown Prince*. A fine group of cut blooms of *Kämpfer's Iris* (*I. Kämpferi*) was shown by Messrs. Barr & Sugden, amongst which were many new seedlings of unusual merit. Mr. A. Boxall sent a fine seedling *Pelargonium* named *Miss Bell*, a kind having a vigorous habit and large trusses of flowers of a pleasing pink colour. A pretty Ivy-leaved form, with cerise-coloured flowers, came from Mr. George, Putney Heath. *Abutilon roseum multiflorum*, a desirable pink-flowered variety, of good habit, was shown by Mr. H. Williams, Finchley.

Fruit.—Of this there was but a small supply, a few Melons only being contributed, but none were considered of sufficient merit to receive certificates.

Spiræa palmata at Coombe Wood.—This beautiful hardy perennial forms a fine feature in Messrs. Veitch & Son's nursery where it thrives remarkably well, some plants of it measuring from 4 ft. to 5 ft. across. The value of this plant for decorative purposes cannot be over-rated, for nothing can be prettier than its broad feathery heads of deep rosy blossoms, which are thrown well up above the bold palmate foliage. Its novel congener *S. elegans*, which is said to be a hybrid, is also well represented, but its pale pink flowers are not nearly so effective as those of the foregoing kind.

ANSWERS TO CORRESPONDENTS.

Hardy Palms in Flower.—Allow me to inform your Hampshire enquirer (p. 72) that we have at present a large specimen of *Chamærops humilis* in full bloom that stood out last winter wholly unprotected. I am inclined to think that the long winter which we have experienced has had something to do with inducing flowering owing to the plants having had such an extended season of rest. The large branched heads of bloom are decidedly ornamental, and the fact that these Palms have stood the winter so bravely should, I think, induce their extended cultivation wherever fine foliage effects are appreciated. J. GROOM, *Linton, near Maidstone*.

Single Cordon Pears.—"A. D. S." trees (p. 72), if double grafted, ought to prove satisfactory, the variety *Marie Louise* being one of the best varieties and surest croppers grown; I would recommend that stopping should not be done too early in the season, as, if done before the base of the shoot gets partially ripened, a mass of weakly wood is the result. In a wet, sunless summer like the present all trees are prone to run to leaf and wood growth; therefore leave the shoots for the present rather longer than usual, merely pinching the point at six or seven leaves from the base, pruning closer in winter. I would recommend oblique rather than vertical training. J. G.

Diseased Cedar of Lebanon.—The fresh soil is not likely to have injured the tree (p. 72) unless it was placed round the collar so as to cover any part of the base of the trunk; that, of course, would cause death, and some of the symptoms are consistent with deep covering, but probably other causes are at work. One would like to know if this is a sudden affection, or whether it has been in existence for any length of time. The presence of fungus may be the cause of the decay of the tree's vital powers, or it may simply be an effect following some other cause of weakness. If it can be ascertained that the failure of the health of the tree is due to fungus, or to placing too much soil round the base, the removal of the cause may perhaps save it—in the former case by removing as much soil as can be done conveniently from above and around the roots, and deluging every part about them with soft water, or soot scattered about and watered in and the roots covered with fresh sweet soil. Soot is a fine restorative in any shape.—E. H.

Garden Workmen.—Will you kindly inform me how many men, besides a qualified head gardener, will be required to keep in order a place of the following dimensions: Kitchen garden, 2 acres; Grass to be kept mown, 2 acres; foot-paths, 14 mile; carriage drive, 3 mile; conservatory (permanent plants), 50 yds. by 7 yds.; conservatory (part permanent plants, but requiring a good many pot plants), 19 yds. by 10 yds.; early Vinery, 9 yds. by 4 yds.; second early Vinery, 9 yds. by 4 yds.; late Vinery, 12 yds. by 3 yds.; stove, 5 yds. by 4 yds.; cold pit, 7 lights; two 3-light frames? Ripe grapes will be expected in the first week in June; early forced Strawberries and French Beans also expected. The conservatory to be supplied with plants (succession) grown in the stove and Vineries; about 5000 bedding plants will also be required. The place will have to be kept in good order.—H. [To be able to answer this question satisfactorily one would require to live for twelve months as superintendent of the garden in question. I have, however, gone carefully into the matter, and think that for such a garden not less than six men (including a head gardener), and a boy or woman to weed walks, &c., would be required to keep it in anything like moderate style, either as to neatness or productions.—W. W.]

Eranthemums.—A. B. H., *Birmingham*. The material on your *Eranthemum* leaves is of animal origin. You say "ants infest the house," so do aphides and mites, judging from the abundant stock on the leaves sent. No doubt these pests cause the mischief, though we cannot agree with you that they are exactly "responsible" for it.—S.

Questions.

Rippingille's Garden Propagating Frame.—Will any of your correspondents kindly state their experience respecting this frame? My own is that the frame is excellent, but the heating apparatus is not good. It is constantly getting wrong as regards the wick, and once wrong it is quite impossible to get at it to remedy it. I have had two of the stoves, and both have gone wrong in the same way; the screw refusing to turn the wick either up or down. The defect apparently arises from cheap construction, but this ought not to be, as the charge for the lamp alone is a guinea. The rectification is so simple that it would be worth Mr. Rippingille's while to attend to it. At present the apparatus is almost useless for winter work, as the derangement of the lamp might imperil the safety of valuable plants.—A. R.

Woodlice.—Can you give me any suggestion as to how to get rid of these in a Melon house? or how to preserve the Melon plants from destruction caused by them? They have destroyed a whole houseful of healthy plants, barking the stems, and waiting apparently till the plants are well grown, with fruit ready to ripen. The house is a "lean-to," heated with hot-water pipes. I have put soot round the bottom of the stems, and poured boiling water along the sides with no effect. A few Cucumber plants in the same house are untouched.—W. C. S.

Fruitless Peach and Nectarine Trees.—About three years ago I had my garden wall, which was very old and dilapidated, faced with Portland cement and then wired for my fruit trees. I also use copings during hard frosty weather. The aspect is south. For the last three seasons I have had no fruit, and this year the Peach, Nectarine, and other trees are most shabby. Is there any cause for this except the weather? Are the wires bad for fruit trees, and is it also a mistake to have faced the old wall as I have done? if so, is there any remedy? I should be very thankful for advice.—R. F. C.

Early Beatrice Peach.—I should be much obliged if some of your subscribers will give their personal experience of this Peach; one is that, though about five weeks earlier than the best mid-season Peaches, it is quite worthless. Rivers' Early York seems also a very inferior Peach. Dr. Hogg, three weeks earlier than the above standard, is of fair size, good colour, and of excellent flavour.—A SUBSCRIBER.

Heating.—Will you give me a few hints about heating feeding pits? The bottom-heat may be given, I believe, with slate tanks, galvanised tanks, or piping; which of these plans is best? If the last, should the piping lie on a solid surface, or have a space left underneath it? What is the best material to use between the piping and the soil?—H. B.

Window Flowers for Winter.—What can I grow and get into flower so as to be good-sized plants for furnishing the windows of villas and working men's windows inside, so as to be ready for this next autumn and winter? Which are the best *Pelargoniums* to grow for winter flowering, and the best mode of culture for them for winter? If you could give me a list of any plants which would do for the purpose (it does not matter how common), of which I could get seed or cuttings for pot culture to come in for this autumn, winter, and spring, I should feel obliged.—ROSE

"This is an art
Which does mend Nature: change it rather: but
THE ART IT-SELF IS NATURE."—*Shakespeare*.

PROTECTING STANDARD FRUIT TREES.

A STRIKING instance of the value of protection for fruit trees has come under my notice this spring. The owner of a Green Gage Plum tree conceived the idea of sheltering it from the frost with some bast mats. A few long poles just sufficiently high to clear the branches were inserted here and there amongst the boughs and around the tree. The mats were then simply cast over the tree, resting in that position on the ends of the stakes. In a general way the mats were removed in the morning, but oftentimes in cold weather they remained on for two or three days at a time. The tree being a standard there was naturally always a free current of air upwards; so that the little covering did not appear to exercise the slightest weakening effect upon it. The fruit set well, and there are now upon that tree more Plums than could be found upon any fifty unprotected trees in the district; in fact, it is the only tree that is bearing a full crop in the neighbourhood. The owner of that tree will be well repaid for an hour's labour expended in arranging the protection, and the few minutes' daily labour in putting on and taking off the covering.

The idea has often occurred to me that more might be done in this way than is generally attempted. We go to the expense of buying and planting fruit trees, occupy valuable space with them, and then allow the frost to deprive us of the fruits of our labour. Once in five or six years, perhaps, we obtain a crop of fruit from trees that have taken years to grow, and which are fairly capable of yearly yielding a good return for our care. A small outlay would suffice to ensure a good amount of fruit in most gardens. One would not of course try to protect large standard trees, but pyramids, small standards, and trees in the form of bushes might be secured against frost at a small outlay of both time and trouble. In the case of the Plum tree in question no difficulty was experienced in protecting it, although it is quite 9 ft. in height; moreover, besides the protection securing fruit for us, the shelter really appears to exercise a beneficial effect upon the tree itself. The bitter drying winds and chilly rains are warded off with the effect of assisting the development of the foliage, and thereby promoting the formation of healthy bearing wood for the ensuing season. It is well known that the damage is not always finished when the fruit is cut off, but that an inclement season makes itself felt in the diminished vigour of the tree. This may often be remarked in the case of the Vine, which is sometimes so injured as to require two seasons to recover.

Strawberries, again, which are an uncertain crop in the open air, may be secured against frost at a slight expense, and the protection has a most marked effect both upon the time of ripening the fruit and its quality. Some few seasons ago I was taught a lesson in regard to this matter. The months of April and May that year were very inclement—frosts succeeded frosts, and so severe were they that every Strawberry bloom was cut off almost before it could expand. The out-of-doors crops were in many places ruthlessly destroyed, and many acres of good plants were rendered quite barren. The autumn previous I had dibbled in a quantity of runners in 4-ft. beds, intending to plant them out in the spring. Circumstances so willed it that this could not be done, and, as they were coming finely into bloom, it occurred to us that we might use a quantity of old boards then lying about for protecting them. The idea was thereupon carried out; two stout pieces of quartering were laid so as to run with the beds, and the boards were laid closely upon them, thus completely covering in the plants. Every evening, just before the sun passed off from the beds, they were covered, thereby securing and storing up for the night a certain amount of solar warmth. It will be readily understood that by this means the fruit was all saved, and, ripening early, much of it realised 7s. per lb. in the market. I can safely affirm that this was the most profitable crop of fruit ever grown here. That year canvas-covered beds fared almost as badly as the unprotected quarters, the frost going through the canvas and cutting off the blooms, whilst those that were more efficiently protected escaped and amply repaid the labour expended upon them. I should add that on cold days the boards were often not removed. That which most impressed me was the extra luxuriance of the plants, the foliage of which assumed a deeper hue, and the growth altogether was more satisfactory than that of those fully exposed. The Presidents which were gathered from these beds were some of the finest I ever saw, single crowns of no great strength furnishing larger and more highly

coloured and finer flavoured fruit than did large well-developed stools in the open quarters. The main point is to cover efficiently; the thin covering generally used is often inadequate when a piercing frost occurs, and the mischief is almost invariably done in one or two nights. Could these two or three, or perhaps only one frost, be warded off a good crop of fruit would be secured.

This subject is well worth the consideration of the owners of small gardens. Amateurs who love to tend their own trees, and to whom the loss of their fruit is a great disappointment, might, with a little management, always make sure of some fruit. Covering and the necessary appurtenances once bought would, for such a purpose, last for years, and would be one of the best of investments. It is grievous to go through garden after garden and to find them quite devoid of the fruit so much desired, and which a little forethought and outlay would have ensured.

J. C. B.

OPEN-AIR GRAPES.

THIS season affords little encouragement for cultivating Vines out-of-doors for the purpose of obtaining crops of ripe Grapes. That such can be obtained this year is out of the question, and it is doubtful whether any fruit will be gathered that will be ripe enough even for wine making. One, or even a couple of bad seasons, however, should not discourage those who may desire to experiment on open-air Vine culture from doing so, as we now and then get summers sufficiently warm to ripen crops, and thus fully compensate for losses in other seasons. I have this year planted Vines against the piers of a south wall, that is again backed by a belt of trees, and the position is a very warm one. These I propose to carry up to the top of the piers, and then divert the leaders right and left along the upper part of the wall, thus utilising space that the Tea Roses planted against the wall will not occupy for some time to come. The sorts are various and include Frankenthal, Madresfield Court, Sweetwater, and Royal Muscadine. Some of these may prove too tender to mature fruit, but they make good growth, at all events, and in such a position may, during a very hot season, produce fairly ripened Grapes. In any other but a warm situation, and where there is an absorber of heat like a brick wall, I fear the chances of ripening are small. A thick wall or the side of a house absorbs, during sunshine, a large amount of warmth that is given off during the night, and thus the Vines receive ripening assistance that is sadly wanting in the case of those trained to stakes in the French Vineyard fashion.

Without doubt, the best general sorts known in this country and suitable for outdoor culture are the Sweetwater and Royal Muscadine (white kinds), and the Ciotat, or Parsley-leaved and small Black Cluster. Mr. Fenn used to grow the Esperione at Woodstock in bygone years, but rarely got the fruit to ripen so as to be acceptable to the palate, although on the south front of the rectory; the best ripened Grapes came from a branch that grew up around a brick chimney, the small additional warmth that passed up the flue helping to mature the fruit. He, however, grew Grapes only for wine-making, and therefore he could use them if only about three parts matured, but at that stage no one, as a matter of course, could have eaten them; still, riper Grapes in the open air are rarely obtained in this country than are produced about Woodstock. The best and ripest bunches of the Ciotat which I have seen were gathered from a Vine growing over an oft-used oven; this fact, and the illustration afforded by the chimney, shows that stored heat or that artificially obtained, is absolutely necessary to ripen Grapes in the open air. To the inhabitants of our towns and populous districts better Grapes are offered in the autumn from abroad than can be grown in this country in the open air. Let the home-grown Sweetwaters and Clusters be ever so ripe, they will always be excelled by the Spanish fruit that is so largely imported to this country in casks, and packed so well in Cork dust. I have purchased beautiful fruit at the varying prices of 2d., 4d., 6d., and 8d., per lb., fruit such as is at once sweet, ripe, and wholesome, and most acceptable to children. At these prices home-grown fruit would barely pay, and, indeed, to find a market, would have to be sold for less money.

To produce a home-made wine may be desirable where strong intoxicating malt liquors are so much drunk, but few persons know how to produce a palatable drink; it is either mawkishly sugared and thick, or intensely acid and rough. Mr. Fenn is probably the best maker of home-made wines in England, as his gold medal award confirms, but even his liquors, pure and highly fined as they were, rarely suited the palates of those who had been accustomed to sherry, claret, and hock. They were too pure and too devoid of spirit. Rhubarb and Gooseberry, separate or combined, produce pleasant wines, quite as good, and far more wholesome than can be made from Grapes. These, moreover, can be easily grown and by any one, and their conversion into wine is less difficult than is the case with Grapes.

A. D.

CULTIVATION OF THE STRAWBERRY.*

THE Strawberry has long been an inhabitant of our gardens, having been known in London as an article of ordinary consumption as far back as the beginning of the fifteenth century. The numerous varieties now in cultivation are the offspring of several species introduced from time to time into this country from various parts of the world. Its cultivation is both simple and easy, and when skilfully managed it will amply repay any trouble or pains taken to produce it in perfection.

The soil most suitable for the successful cultivation of the Strawberry is a good deep rich loam, resting on a free and open subsoil. Soil that contains a good deal of decomposed trap rock will produce the largest and finest-flavoured fruit. In selecting ground for the formation of a new plantation of Strawberries, that which has been occupied by Onions, Cauliflowers, Celery, or other similar crop, for which the land has been previously well manured, should be chosen. In autumn, as soon as the ground has been cleared of its summer crop it should be trenched to the depth of $2\frac{1}{2}$ ft. to 3 ft., according as the nature of the ground will admit, applying at the same time a heavy dressing of good cow manure, which should be placed in the bottom of the trench. The ground should be left in ridges so as to expose as much of its surface as possible to the influence of the atmosphere during the following winter. If the ground be of a light sandy character it will be much improved if, in addition to the manure, there be added a quantity of road scrapings, or of good, strong, heavy loam. If, on the other hand, it consists of a heavy, stiff clay, the addition of coarse sand or lime rubbish, together with a good dressing of hot lime, will do much to improve the fertility of this description of soil.

The best time for planting the Strawberry is about the end of February or the beginning of March, according to the season and the state of the weather. For this operation take advantage of a fine sunny day when the soil is dry. The ground, which had been trenched and ridged the previous autumn, should now be made level and dug over with the spade or digging fork. When ready drills should be drawn with a hoe, as if for sowing Onions. The distance between the rows should be $2\frac{1}{2}$ ft., and 2 ft. from plant to plant in the row; perhaps in very strong rich soils, some varieties, such as President, Sir J. Paxton, and others with large foliage, will require as much as 3 ft. between the rows. It is better always that plenty of room be afforded them, not only for the convenience of cleaning the plantation and gathering the fruit, but, for what is of far more importance, that each plant may be fully exposed to the sun and air during the end of summer and in autumn, so that the crowns may be thoroughly ripened.

The young plants which have been taken from the old plantation at the end of the previous summer, and planted in nursery lines on a warm sheltered border, should now be carefully lifted and planted with a trowel. After planting the ground around the neck of the plants and between the rows should be trodden firmly with the feet, and afterwards hoed with a Dutch hoe merely to level the surface, loosening it as little as possible. When the ground is thus made firm the plants are not so prone to run into foliage instead of throwing up flower scapes, which they are very apt to do if the ground about them be rich and loose.

After the plantation has been completed the ground should be kept clear of weeds, all runners taken off as they make their appearance, and the surface of the ground frequently stirred with the hoe. Should the weather be dry the plants will be much benefited by frequent and heavy waterings. Some cultivators have a practice of growing such crops as Onions, Parsnips, or beetroot between the rows the first year. This I consider a decidedly bad practice, which should be avoided by all means. It not only robs the ground of the nourishment that should properly go to the Strawberry, but will also to a great extent shade the plants from the rays of the sun, which is a greater evil, and prevent the free circulation of air amongst them, upon which depends, in a great measure, the success of next year's crop.

Top-dressing between the rows is very beneficial to the Strawberry, as it serves to keep the ground moist, and affords proper nourishment to the plants. For this purpose good cow manure should be used; it may be put on in the autumn, or in the spring, just as the plants start into growth. I prefer to apply it in the end of autumn, as the enriching principles of mulching are washed down by the rains during the winter, and will cause the plants to start away with greater vigour in spring. About 1 in. of clean straw should be placed on the top of the mulching just as the flowers begin to open.

From the time the blossom begins to appear till the fruit is ripe the plants should never be allowed to suffer for want of water. Strawberries, when in active growth, require a large amount of mois-

ture, and should the weather be dry at this period frequent waterings will be necessary.

As soon as the fruit is all gathered the plantation should be gone over and thoroughly cleaned. Remove the material that has been used for top-dressing, and cut off with a knife all runners and decaying foliage, so as to admit plenty of light and air to the heart of the plants, being careful, however, not to cut away too much of the foliage. To cut off the foliage indiscriminately, as practised by some, is most injurious, and tends to seriously weaken and destroy the health of the plants. After the ground is cleared the surface should be lightly stirred with a fork, care being taken not to disturb the roots. Digging between the rows with the spade should never be practised, as the principal feeding roots will be destroyed in so doing; besides, the Strawberry, as already stated, always produces the best crops in firm solid ground.

With regard to the length of time a plantation should be allowed to remain on the ground, much depends upon the nature of the soil and the mode of treatment. In districts where the soil is naturally rich, and of a character adapted to the growth of the Strawberry, the plants being kept clear of runners and receiving an annual top-dressing of rich material, will continue to produce good crops of fruit for six or eight years, but on ordinary soils, even with the best of treatment, they will not continue to bear profitable crops after the third or fourth year. My own practice is to renew the plantation every third year, and I always find that the best fruit is produced the second year after planting.

The varieties of the Strawberry have increased to such an extent of late years that it is really a matter of some difficulty to make a good selection. Those kinds, however, should be chosen which have been proved by experience to succeed best in the particular soil of the locality in which they are to be grown, as many varieties will produce good crops of fruit in one kind of soil and be almost worthless in another. The kinds which we have found to succeed best with us—our soil being of a light nature, with a gravelly bottom—are Keen's Seedling, Garibaldi, British Queen, President, Sir Joseph Paxton, James Veitch, Dr. Hogg, and Elton Pine. James Veitch is, I consider, the finest Strawberry in cultivation.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Late Strawberries in Pots.—At the present time (July 24) I am gathering excellent Strawberries from pots, and in all probability shall do so for a week or more to come. I gathered my first dish on March 2nd. The varieties which I grow are Keen's Seedling and President—varieties which are equally good either for early or late bearing. It may be easily imagined how useful I find them to be this trying season for outside fruits. As yet I have not been able to gather a good sound dish of Strawberries from beds in the open grounds, thus showing how requisite it is to secure a full supply of good runners at the present time when they are plentiful. The best way as regards having them extremely late in pots is to plunge them in ashes in some cool situation, allowing them to grow away in spring according to the weather, the result being that one is able to have good sound fruits in cool houses, to which the plants may be removed from the open ground should the weather be against the setting of their blooms outside; but if sufficiently favourable for them to remain in the open ground so much the better.—H. A. M., *St. Vincent's, Grantham.*

Raspberries.—These are a heavy crop with us this year, but the ripe fruit is beginning to suffer from the incessant downpour of rain that we are getting. We have them trained in rows, with double wires stretched from iron standards; and by having the strongest canes 5 ft. high, and cutting the weaker ones down close to the lowest wire, we get the whole space covered with fruiting sprays. After tying is completed, a heavy dressing of manure is spread on the surface, and during summer all unnecessary suckers are removed, but in the formation of young growth sorts vary considerably. The Prince of Wales, a free, strong-growing kind, sends up abundance of shoots that are already 7 ft. high, while the Fastolf, an excellent fruitful kind, is sparing as regards young growth; the latter having a tendency to fruit in autumn frequently leaves the bearing wood for next season thin and weak. This variety, therefore, needs and well repays good cultivation and liberal top-dressing. The cultivation of Raspberries is largely extending in some parts of Kent, as there is always a ready sale for the fruit at remunerative prices.—J. GROOM, *Linton.*

Plants and Fruits in the North.—In Westmoreland, within sight of the sea, the red and white varieties of Weigela and *Deutzia gracilis* were only just in the height of their bloom (which was more than usually profuse) on July 21, and some of the *Syringas* will not be in flower before August. In this and most of the other north of England districts Currants, Gooseberries, and some of the

Read at the meeting of the Scottish Horticultural Association on July 1 by Mr. Alexander McKinnon, Melville Castle, Midlothian.

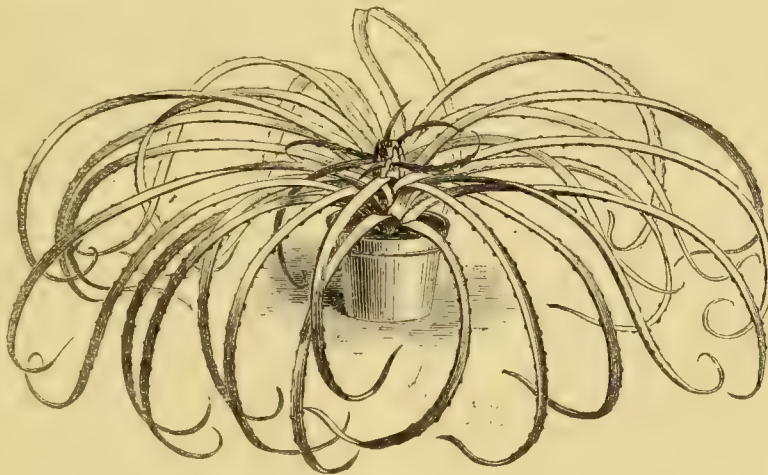
hardier Plums are much more plentiful than in the southern parts of the country. In some places that I have seen Currant and Gooseberry bushes are literally breaking down with the weight of their crops. Pears are bearing a moderate sprinkling; Apples partial, a few kinds moderately full, but the majority are thin, and in some cases there are none at all. Cherries appear to be more plentiful in the north than in the south.—P. G.

THE INDOOR GARDEN.

KARATAS HUMILIS.

THIS Bromeliad is one of the most interesting of the genus, whether from an ornamental or a scientific point of view. It was first badly figured and described by Jacquin in 1781, in his "Icones Plantarum," Vol. I., fig. 60 (not 35 as given in the *Revue Horticole*), under the name of *Bromelia humilis*. Jacquin's plate gives but a poor idea of this beautiful plant. It is strange that though this plant was figured sixteen times in various publications between 1762 and 1862, it has never been properly reproduced. Whether this is caused by its slowness of growth or from its only being rarely seen in flower we know not; the specimen from which the accompanying figure has been taken has only been in our possession since the spring of 1876. It was in March, 1877, that we first saw it in flower, an event heralded some two months previously by the central leaves assuming a brilliant vermilion hue, thus simulating large bracts. This vivid coloration of the central leaves is peculiar to many of the Bromeliads. These coloured leaves often form their only decoration, the flowers being simply useful organs without any great beauty of form or tint. The annexed figure, which is greatly reduced, will give an idea of the general habit of this plant. It is a singular fact that amongst *Karatas* this variation in colour of the central foliage occurs regularly every year at the proper time, whether the plant shows any blossoms or not. This fact has been observed in the *Karatas Legnellæ* and in the *Bromelia agavæfolia*, which ought certainly to be classed as a *Karatas*. With those varieties which are flowerless, this coloration of the leaves lasts just as long as in the case of those which flower. Besides this, as soon as the inflorescence has made its appearance, these brilliant hues fade out of the central leaves and the plants resume their normal appearance. The late Dr. C. Koch describes a plant of *Karatas humilis* which flowered in 1859 in the hothouses of Messrs. Mathien, of Berlin, in the following terms, which differ somewhat from those of Jacquin in being more exact: "In its general habit *Bromelia humilis* (as it was then called) approaches *B. Karatas* (L.), but it has fewer and shorter leaves, which are more curved and perfectly flat on the upper surface, without any central depression, thus closely resembling *Agalostachys Pinguin*. The inflorescence hardly appears above the leaves. The flowers are solitary and sessile on the superior convex portion of the peduncle, and the points of the three divisions of the corolla barely issue from the spathes which protect them. The central leaves become coloured, but they never assume the intensity of hue which is to be found in the majority of the *Agalostachys*." The specific name *humilis* well suits this enormous vegetable spider, which, in spite of its unfriendly look, ought to find a place in every collection, especially if grown on a bracket or in a suspended basket.

C. W. QUIN.



Karatas humilis.

many. The fine compact-growing, free-flowering variety just named is rosy-pink in colour, except the mouth of the tube, which is white. It is a fine addition to these easily-grown, profuse-blooming subjects, and most useful, coming in as it does about the time when *Chrysanthemums* are in flower, and with which it associates well either in a cut state or in the shape of plants.—P. G.

TROPICAL PERIWINKLES.

THE merits of *Vinca rosea* and *alba*, both old-fashioned plants, are not so fully appreciated as they should be by the generality of plant growers. They are neat in habit, free in growth and floriferous; they are by no means difficult to manage, but they require rather different treatment from that which is generally accorded them, in order to realise their true worth. They are often grown in a strong heat amongst a miscellaneous collection of stove plants, where they fail to receive that amount of light and air which is so necessary for the maturation of the wood. When subjected to this treatment their blooms are apt to be drawn up in a meagre manner, and they altogether fail to attain that bushy, vigorous habit which distinguishes them when placed in conditions favourable to their requirements. The very best place in which to grow them is in a light pit, either plunged in or placed on a gentle bottom heat. There enjoying a maximum of light, and being constantly supplied with those conditions of heat and moisture which they delight in, they

grow vigorously and produce flowers in profusion. If this convenience cannot be accorded them, they may be very well grown upon a shelf near the glass in a stove or intermediate house. Vincas are easily propagated by means of cuttings made of half ripened wood. If inserted in silver sand, placed in the stove or propagating house, under a hand-glass, they will take root freely. When fairly rooted, let them be inured to the ordinary atmosphere of the house, when they may be potted off into thumb pots, using fibrous peat with a good admixture of silver sand. As soon as they are fairly established, they should be placed in cooler and more airy quarters, where they will get well hardened by the

autumn. By subjecting them to this treatment, and by pinching them back as required, stocky, hardy little plants will be formed, and the production of strong flowering plants the next season will be comparatively easy. In September they should be placed in a house where the average temperature is sufficient to keep them in health without in any way exciting them into growth. As the days shorten gradually diminish the supply of water, allowing them sufficient only to keep the fibres healthy and the foliage from suffering.

About the middle of February they may be shifted into 2½-in. pots, using a compost of equal proportions of loam, leaf-mould, and peat. Place them where they may receive an increase of 10° of heat, keeping them as near the light as possible. As soon as they are well established, shift them into 4-in. pots, and if it is desired to have larger specimens they may, later on, be put into the next size. For the last shift, a compost of half loam and leaf-mould, and half rotten manure, may be employed; but the latter must be quite two years old, otherwise the proportion must be reduced. Rotten manure may be used in a pure state for Vincas with great success, provided it is several years old and has been turned over many times to purify it. I have found, indeed, that they make root more freely and grow much more rapidly in this rich soil than in any other; and the fact must never be lost sight of that they at all times require to be kept fully supplied with food and moisture. Should they, at any period of their growth, experience a dearth in this respect, the whole appearance of the plants at the flowering time will unmistakably show the effects of it. Plants of superior luxuriance may be obtained by planting them out, either in frames in a gentle bottom heat, or in a light house where a genial atmosphere can be maintained. Some

Salvia Bethelli.—The *Salvias* that bloom during autumn and winter are very effective and useful plants, the fault common in the case of most of them being their glowing red colours, which, when present in anything above a limited amount, are objected to by

Parisian growers cultivate them in this way, and the very best plants I ever saw in 4-in. pots were thus grown. Heat and atmospheric moisture are absolutely necessary for their proper development, and they should never lack for either until the blooms are expanding. Air must be freely admitted on fine days; but it should be taken off early, and the plants syringed and the house well damped down. As soon as the soil is fairly permeated with roots, weak manure water may be administered with benefit; it will strengthen them and put a gloss upon the foliage, and will improve the quality of the flowers. If the plants have been kept growing from the time of the first shift without check, they will by the middle of the summer have formed neat little bushes, and will be studded with their delicately pretty rosy and white flowers. They are then found very acceptable for the decoration of apartments and the conservatory, inasmuch as they form a complete contrast to most other blooming plants of that period of the year. If larger specimens are wished for some of the plants may be kept to be grown on the next year; and if sufficient space can be spared to grow them well, they will prove very strong and effective.

J. CORNHILL.

SHADING PLANT HOUSES AND FRAMES.

LIGHT and warmth are as necessary for plants as for human beings. Deficiency of heat causes a stagnation of the functions and a languid and feeble movement of the sap, whilst deprivation of light produces weakly and imperfect tissues. The effects of a cold, sunless summer are two well known this year to need description; we feel it in the late growth of our summer crops, and we equally experience its effects the ensuing season in an inferior and scanty fruit crop. It therefore behoves us in all that concerns the culture of plants to subject them, as far as is compatible with their respective natures, to the influence of the sun. As is well known, each plant demands of us a certain amount of special study, without which we cannot well hope to bring it to perfection. Let us take, for instance, two such families as Cactuses and Ferns; the one prefers an open dry position, the other delights in moist secluded situations; and yet the moisture-loving family must be supplied with a certain amount of light; it will not thrive, and will even die, if excluded from the sun's influence. It may be safely affirmed that it is never the sun's rays in themselves that injure vegetation; it is rather the aridity engendered by them, and which cannot well be counteracted in glass structures unless shade be afforded. In the case of Ferns, Orchids, &c., could we increase atmospheric moisture in proportion to the heat of the sun, we should have no need to screen our plants from its rays. This circumstance is so often lost sight of that shade is frequently applied on the principle that semi-obscurity is absolutely necessary to the welfare of the plants. Where this principle is carried to excess, the result is invariably drawn, weakly specimens, deficient in stamina, and quite unlike what they would be in a natural state. Many of our marsh and bog plants, the organism of which is of a somewhat fragile and delicate nature, bravely endure without flinching the sun's most ardent rays. The liberal and never-failing supply of moisture at the root, combined with the constant and abundant evaporation continually taking place around them, enables them to bear with impunity, and even enjoy, an amount of light and heat which would otherwise be extremely hurtful to them.

Certain plants which are classed as shade-loving are often grown in houses the glass of which is whitened over during the summer. It is often asserted that such treatment is rational, because the same plants are always found growing naturally where light is more or less intercepted by a stronger vegetation. This course of reasoning, although to a certain extent true, is misleading, inasmuch as the filtered rays of light which the undergrowth of a wood or forest receives are very different from the semi-obscurity afforded by a whitewashed glass roof. The most sceptical may convince himself of the truth of this assertion by visiting a wood where Ferns grow wild. They will neither be found in the open spots, nor will they be seen in the dense shade. They select, so to say, situations where they are in receipt of a considerable share of light, and oftentimes where, at some portion of the day, they are illuminated by the sun's rays. Then, again, it should be remembered that the interior of a shaded glass structure or a frame cannot be compared to the undergrowth of a forest.

The *Camellia* dislikes the full heat of the sun, but we are informed that it grows naturally where only the fiercest rays are excluded; and many kinds of Orchids are only to be found where they enjoy a considerable amount of sunlight. Shading may therefore be regarded as a necessary evil; its employment under certain circumstances is undoubtedly beneficial, and even necessary, but it may be so used as to exercise a very baneful effect upon any kind of vegetation submitted to it. In roomy lofty houses the evil effects of perpetual shade are felt to a much less extent than in the case of

small structures, healthy though many plants in the latter may seem. This is easily explained when the difference in the amount of light, which at all times exists between large and lofty and low and narrow structures, is borne in mind. A plant growing in a house 50 ft. high, the roof of which is continually shaded, will often grow as vigorously and develop as well as when placed in a small structure into which the light can pass unobstructed. Mosses and Ferns are types of shade-loving plants, which invariably shun the full blaze of the sun; yet I would not willingly deprive them at any period of their existence of a single ray of light, my experience inducing me to believe that they thrive in every way better when so placed that they never need to be shaded. A glass structure so situated that it catches the first gleams of the morning sun, and receives its departing rays, but which is quite sheltered from the noonday glare, will be found to perfectly fulfil the conditions necessary for the successful growth of this tribe of plants. They are there screened from excess of heat and aridity, whilst they enjoy the whole day through a maximum of light. The injurious effects of over-shading are seldom fully realised, as the plants subjected to it often display a fair amount of vigour. It is only at a later period of their career that the effects alluded to may be perceived, and then probably the true cause has been lost sight of. Maturation of the tissues is as necessary in the case of such a free-growing flowering plant as the *Primula* as it is for a fruit-bearing tree; and even with respect to tender stove plants, whether prized for their bloom or leaf beauty, we shall find that if unduly deprived of a certain amount of sunshine, they will never realise the expectations of the grower.

One of the most difficult things for a beginner to learn is the importance of minute attention in putting on and taking off shade. It appears to him that half an hour earlier in the morning and half an hour later in the evening can make but little difference. It is, however, often the loss or gain of this half hour which makes or mars the specimen. Let anyone calculate what half an hour a day amounts to in six months, and they will better appreciate the importance of this detail of plant culture. It is for this reason that frames having a north or east aspect are so useful in the summer season; one is enabled to expose them to the full light the whole day through. How much more freely and vigorously do seedling *Cinerarias*, *Primulas*, &c., grow when thus accommodated than if grown where shade has to be afforded during a considerable portion of the day. An east aspect is perhaps the very best that can be had for the summer growth of plants. They there get the first glimpse of the morning sun, and soon after the turn of the day the shade may be withdrawn, the plants watered, damped down, and freely exposed. Too much shade and moisture are prolific sources of mischief in stoves and Orchid houses. The interior of such places is often naturally dark, and when dense shade is given during the daytime, and the syringe freely used, both foliage and flowers are apt to be of a poor description.

The shading material employed should be thin enough to allow the diluted light to pass through it. A coarse canvas, or the French 'Clairés,' which are simply blinds made of narrow strips of lath so arranged that the light passes freely between them into the glass structure, are preferable to bast mats, which are far too dense for this purpose. A little practice and observation will enable any one so to arrange the time for putting on and taking off shade, that a considerable amount of sunlight may be admitted even to the most tender plants. If the house is well damped down, and the occupants sprinkled, they will bear exposure much earlier, and the solar heat and light, combined with the atmospheric moisture, will supply the conditions necessary to ensure free, healthy growth, and the wood and tissues will acquire that solidity which is indispensable for the production of handsome foliage and flowers.

BY FLEET.

Lilies for Conservatory Decoration.—At this season of the year when hard-wooded plants are generally not available for decoration, Lilies, if plentiful, form most beautiful objects in the conservatory, where, if kept cool and shaded, their beauty will last for a long time. In a family, the members of which are all beautiful, it is perhaps ungracious to particularise; but the beautiful Japan Lily, *auratum*, and the different varieties of *lancifolium*, are extremely well adapted for cool-house culture. The compost which I like best is turfy loam, peat, rotten manure, and sand, potting in autumn as soon as the foliage has died down. The pots are then stored away in a cool shed, out of the reach of frost, until growth commences, when they are set in cold frames, and brought on according to the season at which it is desired to have them in flower. Top dressing with cow or sheep manure, and a little loam to encourage the development of surface roots, keeping them well supplied with water, and, above all, ripening off the foliage naturally, are the principal points in order to ensure success with this beautiful class of plants.—J. GROOM, *Linton*.

ROSES.

ROSES ON TREES.

THE annexed engraving represents a beautiful but not uncommon freak of Nature—a wild Rose self-planted in the heart of a pollard Ash. It is one of those freaks which may very well be imitated in the garden, not by planting the Rose in the heart of an old tree, but by planting it at the base and letting it ramble over the upper branches. I have here a very large and thick Box bush, in the centre of which there has been for many years an Ayrshire Rose. The long branches covered with flowers, and resting on the deep green



Wild Rose growing on a Pollard Ash in Orchardleigh Park, Somerset.

cushion, have a very beautiful effect. Other Roses may be used in the same way. The Musk Rose of Shakespeare and Bacon would be particularly well suited for this, and would climb up to a great height. *R. scandens* or *sempervirens*, *R. multiflora*, and perhaps some others, might be grown in the same way; and it would be worth while to experiment with other garden forms, such as *Aimée Vibert*, purple *Boursault*, &c. If grown against a tree of thin foliage, such as a *Robinia*, they would grow quicker and flower sooner; but this is not necessary, for even if grown near a thick-foliaged tree they will soon bring their branches to the outside for the light. But besides climbing Roses, there is another way in which Roses may be

combined with trees to great advantage, viz., by planting some of the taller-growing bushes at the base of the trees. These would grow from 6 ft. to 10 ft. high, and would flower well in such a position. For such a purpose the old Dutch Apple Rose (*R. villosa* var. *pomifera*) would be very suitable, and so would *R. cinnamomea*, *R. fraxinifolia*, *R. gallica*, *R. rubifolia*, and the common monthly *China*. And if growers would rear the perpetual and other Roses by autumnal cuttings instead of by budding, they might have hundreds and thousands of fine Roses which would do well planted in the woods and plantations.

H. N. ELLACOMBE.

Bilton.

BENNET'S PEDIGREE ROSES.

HAVING heard a good deal concerning the entirely new strain of Roses raised by Mr. Bennet, of Salisbury, and knowing that Messrs. Fisher, Holmes, & Co., of the Handsworth Nurseries, Sheffield, had secured a large stock of these, I sought for and had an opportunity of inspecting them a few days ago, and also of learning some particulars regarding their history, &c., which I am sure will be interesting to all lovers of Roses. In originating the new race of "Pedigree Seedling Roses," Mr. Bennet has most decidedly stolen a march on the older Rosarians, and one is not surprised to learn that there is a disposition in some quarters to underrate his productions; but I am mistaken if the Pedigree Roses do not take a foremost place in our gardens, and that, too, in a short time. Mr. Bennet, it may just be explained, is as much or more a farmer than a gardener, and, seeing the wonderful improvements made year by year in the cross-breeding of stock, he determined to make an attempt to apply the same rules to Rose breeding, and so far his new Roses are the result. From an intimate acquaintance with the history of the Rose and what had been done both at home and in France in raising new varieties, Mr. Bennet judged that no systematic attempt at cross-breeding by manual fecundation had been attempted, and in this direction he saw that he had scope. He therefore set about crossing Tea Roses with Hybrid Perpetuals, and succeeded completely, after encountering not a few difficulties, and the result of his labours up till the present time are nine new Roses possessing the vigorous constitution of the Hybrid Perpetual and a perpetual blooming habit never possessed by the latter, and otherwise totally different in type from any Roses hitherto raised. Mr. Bennet's object was to produce yellow and white Hybrid Perpetuals and crimson and high-coloured Teas, and in this he claims to have succeeded.

I append the names of the nine new sorts and the names of their parents in each case: Beauty of Stapleford, the produce of alba rosea crossed with Countess of Oxford, pink and rose. Duke of Connaught, the result of crossing President with Louis Van Houtte, deep velvety crimson and red; full. Duchess of Connaught, raised from President crossed with Duchesse de Vallambrosa, silvery-rose; distinct. Jean Sisley, the produce of President crossed with Emelie Hausburg, lilac and pink. Michael Saunders, raised from President crossed with Mme. Victor Verdier, bronzy-pink. Honourable George Bancroft, the result of crossing Madame de St. Joseph with Lord Macaulay, rosy-crimson shaded with purple. Pearl, raised from President crossed with Comtesse de Serenyi, flesh-white. Viscountess Falmouth, also raised from President crossed with Moss Soupert et Notting, delicate pink-rose, very fine; this variety, as can be seen at a glance, indicates its parentage, the wood being only less prickly than that of a Moss Rose. Duchess of Westminster, the produce of President crossed with Marquise de Castellane; flowers large, fine form, bright cerise.

These descriptions, it may be mentioned, are abridged from the catalogue principally, but numbers of the varieties have already bloomed at Handsworth, and fully bear out the high character given them. Though little has been written about these Roses hitherto, they seem to have already excited much interest amongst Rosarians. All the varieties seemed well on the Dog Rose and on their own roots, and all are extremely hardy, having resisted 30° of frost in exposed situations. To their free and precocious flowering habit I can testify personally, for of the thousands that have been rapidly propagated at Handsworth within the last few weeks almost every plant had shown flowers and continued to do so where they had not been picked off. The whole stock is worked on the seedling Brier, and it is simply astonishing how Roses can be multiplied in this way. Private growers would perhaps hardly believe me if I were to tell them how many thousands of the Pedigree Roses had been raised from about four dozen plants received at the Handsworth Nurseries only in June last, and it says no little for the vitality of the new race that they can be multiplied at such a marvellous rate. All the plants were in 4-in. or 5-in. pots, and rooted and growing freely. The seedling Brier roots are simply chopped up into pieces like Seakale thongs and a Rose bud is inserted in each

piece, which is at once potted and placed in a frame; growth commences immediately, and before many days the plant is yielding buds in its turn for propagation. Summer grafting appears now to be practised on a far more extensive scale than formerly. I observed a number of the last new English Roses—Dr. Levell, H. Weir, Marquis of Salisbury, Eduard Morren (climbing), Countess of Rosebery, and others in the same frames—that had been winter-grafted, but could not compare in growth, vigour, or floriferousness with the summer-worked stock.

J. S. W.

ROSES ON THEIR OWN ROOTS.

THE three forms in which Roses are commonly grown in gardens have their several uses, and there will always be room for discussing their relative merits for particular purposes. But a general statement of the case may be made, and may be useful. For the production of flowers for exhibition on a strong deep soil the common Brier of the hedgerows is at once valuable and easy to manage. The rule of multiplying Roses with this stock is to enter buds at any height above ground that may suit the growth of the Brier or the wants of the cultivator. A 4-ft. Brier with two or three strong shoots at the top may be converted into a 4-ft. standard Rose by entering buds on two of the shoots, and cutting out the third; or to augment the chances of success, all three shoots may be budded and all the buds may be allowed to grow. For the production of useful garden Roses as well as of flowers thinned out for exhibition, the soil being stony or shallow, or otherwise not strong enough for the English Brier, the best stock is the Manetti. This is not well adapted for forming standard Roses, but makes good bushes, and in the process of budding the buds should be entered as near the roots as possible; in fact, the earth should be slightly scraped away from the base of the stock to enable the operator to insert the buds close down to the junction of the roots with the stem. When the buds have advanced and the Manetti or stock growth has been got rid of, the plants may be planted out a little deeper than they were in the budding bed, and in the course of time the Rose standing on Manetti roots will form roots of its own, and the original stock will die away, and thus by suitable arrangements Manetti Roses may be converted into Roses on their own roots. An important matter is the suppression of Manetti suckers, and therefore the beginner should as soon as possible become acquainted with the bluish-green leafage of this Italian Brier. When suckers that are evidently the growth of the named Roses rise, you may judge that your named varieties have rooted above the original stocks; therefore their suckers should not be suppressed, for it is one of the special properties of own-root Roses that they have the power of perpetually renewing themselves by the production of suckers from the roots. The Manetti is a charming wilderness and wild garden Rose, but its only use in the flower garden is to assist by means of its roots the free growth of named Roses, and it is to obtain this free growth in the bush form that we bud Roses on Manetti stocks.

Cuttings or Eyes.—The other and better way to obtain Roses on their own roots is to strike cuttings or eyes. It has been our practice for years to strike a lot of cuttings every year and grow them on in pots, flower them, and then plant them out. This practice is productive of a double pleasure. From April to the end of June the pits and houses supply quantities of little Rose trees that are pictures of health and freshness and that produce two or three flowers each, the flowers being of the most beautiful character, and the plants invaluable for lighting up the front line of the conservatory or to put upon the table or the sideboard, whence of course they are removed as soon as the flowers wane. Having served this purpose they have attained to a reasonable size for planting out. For all purposes, where the soil is of a kindly nature, Roses on their own roots are best; they make better groups than standards; they produce the finest exhibition flowers when suitably managed as to feeding and thinning; and when a great frost cuts off all the Roses—and many will remember that such things have happened—the Roses on their own roots rise again and re-establish themselves, which Brier Roses cannot do, because the Briers stand between the Roses and the ground. The reason why Roses on their own roots have this power of renewal is to be found in the fact that when frost kills the tops it does not usually touch the bottoms. The shoots are killed, but the roots remain unharmed; these roots have but to be left alone and they will throw up a quantity of strong suckers, and these branch and flower and become as good, and perhaps better, bushes than those originally planted. The time is at hand for striking cuttings and eyes of Roses. As the flowers wane the new growth will appear, and the cuttings should be prepared from the young shoots when they have become a little firm, but before they have hardened into real wood. To do the work well a good frame or pit is needed, and a few bell-glasses or common hand-lights. Indeed, the propagation by cuttings should be carried on at the same time as budding, so as to use up all

the shoots that are cut from which to obtain buds. When you take off a fine rod to get a few buds, the top of it, say five or six joints long, will make the best possible cutting. If the top is very soft cut it away, and prepare the cutting in the usual manner by a clean cut under the lowest joint, the leaf from that joint and the next joint above it to be removed. Then prepare a 2½-in. pot with a few small crocks, a mixture half sand and half leaf-mould, pressed in moderately. Into this the cutting is to be thrust till its base is hard upon the crocks, and a bit more compost to fill nearly to the rim, and another pressing to make it tight and firm. Give a good watering and put it into a cold frame with a bottom of coal ashes, and shut down close. Cover with a mat to prevent mischief from sunshine, and it will be strange if every one so dealt with does not make a promising plant; the latter should be shifted into 3-in. pots into proper Rose compost, and to be wintered in a pit or in a greenhouse. If your pits and frames are already overstocked, creep in among the Currant bushes, level a piece of ground in a shady place, pack the pots together in circles, and put a bell-glass or a hand-light over each lot; give air by degrees, and watch that their new shoots are not attacked by vermin, and you will soon see that there is no magic or mystery in propagating Roses by the million.

Bud-striking.—But a still better and even a more interesting way is to use buds instead of cuttings. Take a shoot, such as would be chosen as a scion for budding. Have some shallow pans prepared with crocks, leaf-mould, and sand, and one inch of pure sand on the top. Better still, use turfy peat, with the same inch of sand on the top. Cut away the best buds, in the same way as if they were to be used for budding, but let the wood remain and let the leaf remain. Plant each of these shield buds upwards, leaf complete, bark just covered, so that the bud stands up very firmly. Waste no time; as soon as the pot is filled, so that the leaves just touch all over, give a good sprinkling of water, put on the bell-glass, and go on again. The tops of the shoots may be put in quite closely together as cuttings, with the two lowest leaves removed, and the wood cut clean under a joint. Put them in shallow pans, put on the bell-glasses, and very few will fail. Buds treated in this way start in the same manner as Grape Vine eyes, only Grape Vine eyes have no leaves to help them. Pot them singly into 2½-in. pots as soon as they begin to put out white roots from the callus, or you may even pot them as soon as the callus has become definite and firm. Shift none from the first potting till the roots begin to peep out through the crocks, and not even then if the season is far gone, unless you can give them a shelf in a warm house. It is best to winter these in a pit or greenhouse. They make beautiful plants, and can be grown to any shape or any size of which the variety is capable. The last lot which I struck from eyes in this way were put in an old frame on a great heap of waste Fern and Moss, full in the sun. A mat was kept over them all day, and removed at sunset. A week afterwards, the light was tilted to give a little air, and they came wonderfully quick and strong, the Fern acting as a hot-bed. Out of twenty-two pans covered with bell-glasses all succeeded but one, and that one the ants got into and filled the bell-glass with the debris of their mining operations, burying the buds six inches deep.

Autumn Cuttings.—Instead of a few coddled, dwindled specimens of struck cuttings of the Rose that so often serve to satisfy the amateur gardener, who has hitherto only attempted the propagation in pots and in heat, let me briefly tell him how to secure plants by the hundred, or even thousand, if he please, with as much certainty as he produces his hundreds of Tom Thumb Pelargoniums. In the latter part of September or first week of October go over the Rose beds, and cut off all the straggling shoots; cut them up into cuttings (excepting the soft points) about 6 in. in length, or more if the eyes are far apart. Having previously dug and well broken a piece of ground, and put upon the surface a good dressing of sand, which slightly stir in, tread the ground evenly all over, and smooth the surface. Then take a spade, and begin at one end to open a slight trench; then insert a row of the cuttings, about 3 in. apart, after which close the soil closely upon them; then open a second row at about 6 in. from the first, and proceed as before, and so on until all are planted. By autumn of the next year they will be good plants, if occasionally stopped when growing freely during the summer. I knew a nurseryman who used to put in his winter prunings of Roses in this way, and was content if he got one in three or four to grow. Had he done as now recommended he might have made sure of nearly all. He waited till the growth had quite ceased, and hence his partial failure; whereas if the cuttings are made whilst the sap is still in motion, a callosity is formed before winter, and the cutting is able in consequence to resist the inroad of wet during winter, and is thus preserved from rotting. In October a few years ago, I inserted a quantity of short cuttings of *Géant des Batailles*, *Jules Margottin*, *General Jacqueminot*, and others of the most useful Roses, in a bed of leaf-mould in a pit from which the lights were removed; they had no water, and, in fact, no attention, except that

at the end of November the lights were put on and kept on till the bright weather of April compelled their removal. The pit was then full of good healthy plants, nearly all showing bloom buds. The best were lifted with a trowel, potted into 4½-in. pots in rich soil, half rotten manure and half turfy loam; they were then placed in the greenhouse, and on May 8 the first bloom opened, and a few days afterwards they were all in bloom and with their bright clean foliage made a charming spectacle. This I imagine is the simplest of all methods of propagating Roses on their own roots.—*Gardener's Magazine*.

TREES, SHRUBS, AND WOODLANDS.

FORESTS OF CENTRAL NEVADA AND ADJACENT REGIONS.

By CHAS. S. SARGENT.

To the traveller crossing the Great Basin by the line of the Pacific Railroad the country will appear almost as destitute of trees as the great plateau over which he has passed in approaching the Rocky Mountains from the east. This first impression will disappear, however, should he penetrate farther south, and ascend some of the low mountain ranges, which, with a general north-and-south trend, everywhere cut up this elevated interior region into long, narrow valleys. As compared with our Atlantic forests, or those still nobler ones which, farther to the west, owe their existence to the influence of the Pacific, the forests which clothe, with a scanty and stunted vegetation, the mountain slopes of Nevada are miserably poor in extent, productiveness, and especially in the number of species of which they are composed. Actually they are of immense value. For scanty as they are, they regulate and protect the rare and uncertain streams on which the agriculture of Nevada depends, and furnish a large population with fuel and lumber; a population, too, which, while consuming and wasting enormously its forests in vast mining operations, is practically cut off, by its isolation and the cost of transportation, from outside supply.

A hurried journey made in September last, undertaken for the purpose of studying *in situ* the trees of the Great Basin, and of introducing into cultivation some of the peculiar plants of that region, took me to the great mining centre of Eureka, and then through Dry and Fish-spring valleys seventy-five miles further south-west into the Monitor Range, to the point where its highest peak, Table Mountain, reaches an elevation of 11,200 ft., and offered an excellent opportunity to examine the timber supply of that central portion of Nevada.

The forests of this portion of the State are composed of but seven species. Of these, two, the Red Cedar (*Juniperus virginiana*, L.) and the Aspen (*Populus tremuloides*, Michx.) extend across the continent; two, *Pinus Balfouriana* (Murr.) and *Pinus flexilis* (James), extend along the mountain ranges from the Rocky Mountains of Colorado to Mount Shasta in California; two, *Pinus monophylla* (Torr.) and *Juniperus californica* (Carrière) var. *utahensis* (Engelm.) are endemic to the Great Basin; while *Cercocarpus ledifolius* (Nutt.), although occurring as a shrub both in the Rocky Mountains and in California, only here becomes a valuable tree.

Neither the Red Cedar nor the Aspen need be considered here. A single small plant of the former was noticed; and it is evidently so rare throughout this region that it adds but little to the value of its forests. The Aspen borders all the mountain streams above 8000 ft. elevation, but, rarely surpassing 15 ft. in height and a few inches in diameter, is practically without value for its products. Further east in the Wahsatch Mountains, this species is sometimes seen with stems 2 ft. through; and it is largely used by the Mormons, who consider it valuable for flooring, turnery, &c.

Juniperus californica var. *utahensis* is the most common and the most widely distributed of the trees of this region. It is found at lower elevations than any other tree, and alone descends into the valleys, where, at elevation of 5000 ft., it is often abundant, but less so than on the mountain sides, over which it spreads up to 8000 ft. elevation. It is a low, bushy tree, branching from the ground, with a stout trunk which rarely exceeds 2 ft. in diameter; short and very stout branchlets, and thick, shreddy bark. The wood, which is moderately hard, pale coloured, and slightly aromatic, furnishes the common and cheapest fuel both for domestic use and for generating steam on the railroads and at the mines. The typical *Juniperus californica* belongs to the Californian coast range, and the variety extends over the whole of the southern portion of the Great Basin. In fruit this species will be readily distinguished by its dry one-seeded berry, the great thickness of the stony coating of the seeds, and from all other Junipers (as pointed out by Dr. Engelmann) by its 4 to 6 cotyledonous embryo. Without fruit it may be easily confounded with *Juniperus occidentalis* (Hook.), which species, however, has not been detected in Central Nevada. Like all the trees of the Great Basin, this Juniper is of exceedingly slow growth. A specimen before me 4½ in. in diameter shows 105 annual layers of growth, or an annual average increase of nearly one-fiftieth of an inch.

Growing with this Juniper, above 6000 ft. elevation, and extending rather higher up the mountains, is *Pinus monophylla* (Torr.), the Nut Pine of Nevada and Eastern California, but not to be confounded with an allied species, also bearing edible seeds, *Pinus edulis* (Engelm.), found from Colorado to New Mexico and Arizona. *Pinus monophylla* is a small tree, 10 ft. to 20 ft. high, with reddish scaly bark, and is easily distinguished from other North American Pines by its solitary, glaucous, terete leaves (very rarely in pairs, and then semi-cylindrical). The wood is white, soft, light, and very resinous; it is more highly prized for making charcoal than that of any tree of this region. In slowness of growth *Pinus monophylla* does not essentially differ from the Juniper with which it is associated. A specimen that I have examined, from the locality which furnished the specimen of Juniper referred to above, is 5½ in. in diameter, and shows 113 annual layers of growth. The immense crops of large and delicately-flavoured seeds produced by this tree supply, as is well known, to the Indian tribes of the Great Basin their most important article of food. The value of this crop and the excellent quality of the wood for charcoal make this tree, in a mining region entirely destitute of coal, its most valuable vegetable production. The introduction of *Pinus monophylla* into the south of Europe as a subject for forest planting is worthy of consideration; it might flourish there on those dry and exposed hill sides which have been found so difficult to satisfactorily re-cover with any European tree. Its strictly pyramidal habit while young—a habit which it entirely loses with age—and the pleasing glaucous tints of its foliage commend this species to the lovers of ornamental Conifers.

*Pinus Balfouriana** was only met with on Prospect Mountain, near Eureka, at an elevation of 7500 ft., to the summit 8000 ft. Formerly the whole summit of this mountain was very generally covered with this species; but, with very few exceptions, the trees have all been cut to supply the mines with timbering, for which purpose the strong and very close-grained tough wood of this species is preferred to that of

* With the insufficient material at my disposal I cannot satisfactorily separate *Pinus aristata* (Engelmann) from Murray's *P. Balfouriana*, the older name, and founded on Californian specimens. *Pinus aristata* is an Alpine plant discovered by Parry many years later in the Rocky Mountains of Colorado.

any other Nevada tree. The specimens seen were from 15 ft to 30 ft. high, with trunks often 2 ft. in diameter, pyramidal in outline, their lower branches still remaining, so that at a little distance they might readily be mistaken for Spruces. The bark, like the wood, is reddish in colour, very thick, and deeply furrowed; that of the branches smooth and quite white. The short, falcate, adpressed leaves persist for years, forming tufts of foliage 1 ft. or more long at the ends of the naked branches; and this peculiarity has suggested to the lumbermen of the region the name of "Fox Tail Pine" for this species. *Pinus Balfouriana*, should it be found to retain in cultivation the peculiarities which characterise it on the mountains of Nevada, will be one of the most striking and interesting of the genus for ornamental planting.

Pinus flexilis, the Nevada representative of the Eastern White and the Californian Sugar Pine, is the largest and the most valuable timber tree of the central portion of the Great Basin. I found large tracts of it on the Monitor Range from 8000 ft. up to 10,000 ft. elevation; and further to the north-east it gives their names to White Pine District, White Pine Range, &c. On the Monitor Range specimens from 50 ft. to 60 ft. high, and from $2\frac{1}{2}$ ft. to 4 ft. in diameter were not unfrequent, the trees becoming smaller as the elevation increased, until at 10,000 ft. they were little more than prostrate bushes 1 ft. or 2 ft. high. The fact that the finest specimens were found on the banks of the mountain streams, associated with *Populus tremuloides*, indicates that this species is more dependent on moisture than the other Nevada Conifers. It is the only tree of this region which is sawed into lumber. The wood is soft, white, and, although not free from knots, is of fair quality, and about intermediate between Eastern White Pine and Sugar Pine.

Cercocarpus ledifolius, with *Populus tremuloides*, the only non-coniferous tree of this region, here attains its largest size and greatest age. It is common at from 6000 ft. to 8000 ft. elevation, and, next to the Juniper and the Nut Pine, is the most common of Central Nevada trees. It is a small tree from 10 ft. to 30 ft. high, with small evergreen leaves and brown scaly bark, in habit and general appearance not unlike a stunted Apple tree. The wood of this tree, which is of a bright mahogany colour, and susceptible of a beautiful polish, is exceedingly hard, heavy, and close-grained, but very brittle, and so liable to "heart shake" and difficult to work as to be useless in the arts. It is, however, sometimes employed for the bearings of machinery, where it is found to wear as well as metal; but it is as fuel that "Mountain Mahogany" (the name by which, owing to the colour of its wood, *Cercocarpus* is universally known) has no North American equal. We are in the habit of considering that our Eastern Hickories produce the best fuel. The specific gravity of dry Hickory is but .832, while that of *Cercocarpus* is 1.117, so that, weight being the best test, as fuel it is worth 30 per cent. more than Hickory. The amount of ash, too, left after burning *Cercocarpus* is only 52-100ths of 1 per cent. of the dry wood consumed, while that of Hickory is 81-100ths of 1 per cent.; 3-10ths per cent. more. *Cercocarpus* is probably the only North American wood which is heavier than water; and among the tropical woods employed in the arts and described by Haslett, but six equal or surpass it, the most conspicuous being the West Indian *Lignum Vitæ* (*Guaicum*) with a specific gravity of 1.248. As was to be expected the growth of *Cercocarpus* was found to be exceedingly slow. An examination of several specimens from 100 to 200 years old shows an average annual increase of wood only 1-6th of

an inch in thickness. The largest specimen of this tree was seen on Prospect Mountain near Eureka, in New York Canon, at an elevation of 7000 ft. It was a low, much branched tree, about 20 ft. high, with a trunk rising 6 ft. to the first branches. At 3 ft. from the ground it had a girth of 7 ft. 5 in. If we suppose that its average growth had been as rapid as that of the younger specimens examined, this tree would have been 890 years old. It was probably much older. The rate of growth of trees is, after a certain age, in inverse ratio to their age, and it is perhaps permissible to suppose that the seed which produced this little tree had already germinated when the oldest living *Sequoia* on the continent was still a vigorous sapling with its bi-centennial anniversary still before it.

Two shrubby plants of this region may be mentioned, which from their beauty are especially worthy of introduction to cultivation—*Cowania mexicana* (Don.), a large Rosaceous shrub, nearly allied to *Cercocarpus*, with elegant pinnatifidly-lobed leaves and large and very abundant yellow flowers; and a large, shrubby *Spiræa* (*S. Millefolium*, Torr.), with the foliage of *Chamaebatia*, but a larger and more striking plant, and, perhaps, the most elegant of the genus.

It will have been seen that the forests of Nevada, consisting of a few species adapted to struggle with adverse conditions of soil and climate, are of immense age, and that the dwarfed and scattered individuals which compose them reach maturity only after centuries of exceedingly slow growth. On this account, and because, if once destroyed, the want of moisture will for ever prevent their restoration, either naturally or by the hand of man, public attention should be turned to the importance of preserving, before it is too late, some portions of these forests. Large areas of forest-covered mountain ranges are still held by the General Government, and in view of the vast importance of their remaining wooded to serve as reservoirs of moisture, on the existence of which the future of this region must depend, it would seem wise and not perhaps altogether impracticable to check or at least to regulate the terrible destruction of forest, which follows, both on public and private domain, every new discovery of the precious metals.

A comparison of the arborescent vegetation of Nevada with that of the region lying directly east and west of the Great Basin may be interesting. Such a comparison will serve to more clearly demonstrate the remarkable poverty of the Nevada forests. It will afford, too, another illustration of the relation of the moisture to forest distribution, especially with reference to the multiplication of species, which will be found to increase or diminish as the rain-fall is more or less abundant and more or less equally distributed.

In the territory between the 41st and 37th parallels of latitude, and extending from the eastern base of the Rocky Mountains to the foot of the western slope of the Sierra Nevada, are three distinct belts of arborescent vegetation.* Beginning at the east there is: 1, the Rocky Mountain region, including, besides the main range, the Uinta and the Wahsatch, and embracing Colorado and the eastern half of Utah; 2, the Nevada region, extending from the western base of the Wahsatch to the eastern base of the Sierra Nevada, and embracing the western half of Utah and the whole of Nevada with the exception of the extreme northern and southern portions of the State; 3, the Sierra Nevada region.

In the Rocky Mountain region, to which, in spite of its mid-continental position, considerable moisture is attracted by high peaks which everywhere dominate it, there are twenty-

* For the purpose of the present comparison not only trees but all frutescent plants which may be expected to exceed 4 ft. in height, and therefore as undergrowth to form an important element in the forest, will be included.

five trees and forty-eight shrubs, in all seventy-three species. In the Nevada region, where, owing to its isolated position between high mountain ranges, the rain-fall is small and very unequally distributed, the number of species is reduced nearly one-half—to thirty-eight; ten trees and twenty-eight shrubs. In the Sierra Nevada region, to which the Pacific contributes a large, although unequally distributed, snow and rainfall, the number of species is increased to eighty-nine; of these thirty-five are trees,† or three and a half times more than occur in the adjoining Nevada region, and a third more than are found in the Rocky Mountain region; and fifty-four are shrubs, or double the number of the Nevada region.

The following table shows the arborescent‡ and frutescent species, so far as they are now known, which occur in these three regions:—

The Rocky Mt. Region.	The Nevada Region.	The Sierra Nevada Region.
<p><i>Berberis Fendleri</i></p> <p><i>Ptelea angustifolia</i> <i>Rhamnus californica</i></p> <p><i>Acer grandidentatum</i> <i>Acer glabrum</i> <i>Negundo aceroides</i> <i>Rhus glabra</i></p> <p><i>Rhus aromatica</i> var. <i>trilobata</i> <i>Rubina Neo-Mexicana</i></p> <p><i>Prunus pennsylvanica</i> <i>Prunus virginiana</i> <i>Prunus demissa</i> <i>Spiraea discolor</i> var. <i>dumosa</i></p> <p><i>Neillia opulifolia</i> <i>Rubus deliciosus</i> <i>Parshia tridentata</i> <i>Corylus ramosissima</i> <i>Cercocarpus parvifolius</i> <i>Cercocarpus ledifolius</i> <i>Cercocarpus intricatus</i> <i>Cowania mexicana</i></p> <p><i>Rosa blanda</i></p> <p><i>Rosa blanda</i> var.</p> <p><i>Pyrus sambucifolia</i> <i>Crataegus rivularis</i> <i>Crataegus coccinea</i> <i>Amelanchier alnifolia</i> <i>Peraphyllum ramosissimum</i> <i>Philadelphus microphyllus</i> <i>Fendleri rupicola</i></p> <p><i>Ribes cereum</i> <i>Ribes aureum</i> <i>Ribes leptanthum</i> <i>Ribes bracteosum</i> <i>Ribes divaricatum</i> var. <i>irriguum</i></p> <p><i>Cornus pubescens</i></p> <p><i>Sambucus glauca</i> <i>Sambucus racemosa</i> <i>Lonicera involucrata</i></p> <p><i>Artemisia tridentata</i></p> <p><i>Forestiera Neo-Mexicana</i></p>	<p><i>Berberis Fremonti</i></p> <p><i>Acer glabrum</i></p> <p><i>Rhus aromatica</i> var. <i>trilobata</i></p> <p><i>Prunus Andersoni</i> <i>Prunus demissa</i> <i>Spiraea discolor</i> var. <i>dumosa</i> <i>Spiraea millefolium</i></p> <p><i>Parshia tridentata</i></p> <p><i>Cercocarpus ledifolius</i></p> <p><i>Cowania mexicana</i></p> <p><i>Rosa californica</i> var. <i>ultramontana</i> <i>Rosa blanda</i> var.</p> <p><i>Amelanchier alnifolia</i></p> <p><i>Ribes cereum</i> <i>Ribes aureum</i></p> <p><i>Cornus pubescens</i></p> <p><i>Sambucus glauca</i> <i>Lonicera involucrata</i> <i>Artemisia tridentata</i></p> <p><i>Fraxinus anomala</i></p>	<p><i>Shepherdia canadensis</i> <i>Shepherdia argentea</i></p> <p><i>Eleagnus argentea</i> <i>Sarcobatus vermiculatus</i> <i>Atriplex confertifolia</i> <i>Celtis occidentalis</i> <i>Celtis occidentalis</i> var. <i>pumila</i> <i>Quercus undulata</i></p> <p><i>Betula occidentalis</i> <i>Betula glutulosa</i> <i>Corylus rostrata</i></p> <p><i>Alnus incana</i> <i>Alnus viridis</i> <i>Salix longifolia</i> <i>Salix cordata</i> <i>Populus tremuloides</i> <i>Populus angustifolia</i> <i>Populus balsamifera</i> var. <i>canadensis</i> <i>Ephedra trifurea</i> <i>Pinus contorta</i> <i>Pinus contorta</i> var. <i>latifolia</i> <i>Pinus ponderosa</i></p> <p><i>Pinus edulis</i> <i>Pinus flexilis</i> <i>Pinus Balfouriana</i></p> <p><i>Picea Engelmanni</i> <i>Picea pungens</i> (Abies Menziesii of the Colorado Flora) <i>Abies subalpina</i> <i>Abies concolor</i></p> <p><i>Pseudotsuga Douglasi</i></p> <p><i>Juniperus occidentalis</i> var. <i>Juniperus virginiana</i></p> <p>73 species 47 genera 19 timber trees 6 small trees 48 shrubs</p> <p><i>Carpenteria californica</i> <i>Rhus cereum</i> <i>Ribes aureum</i> <i>Ribes leptanthum</i> <i>Ribes Menziesii</i> <i>Ribes oxyacanthoides</i> <i>Ribes sanguineum</i> var. <i>variegatum</i></p> <p><i>Cornus pubescens</i> <i>Cornus sessilis</i> <i>Cornus Nuttallii</i> <i>Garrya Fremonti</i> <i>Sambucus glauca</i> <i>Sambucus racemosa</i> <i>Lonicera involucrata</i> <i>Cephalanthus occidentalis</i></p> <p><i>Lamothoe Davisii</i> <i>Arctostaphylos pungens</i> var. <i>platyphylla</i> <i>Rhododendron occidentale</i> <i>Styrax californica</i> <i>Fraxinus dipetala</i> <i>Fraxinus cregoma</i> <i>Eriodictyon glutinosum</i> <i>Umbellaria (Oreodaphne) californica</i></p> <p><i>Shepherdia canadensis</i> <i>Shepherdia argentea</i> <i>Shepherdia rotundifolia</i></p> <p><i>Sarcobatus vermiculatus</i> <i>Atriplex confertifolia</i> <i>Spirostachys occidentalis</i></p> <p><i>Salix longifolia</i> <i>Salix cordata</i> <i>Populus tremuloides</i> <i>Populus angustifolia</i> <i>Populus trichocarpa</i></p> <p><i>Ephedra trifurea</i></p> <p><i>Pinus monophylla</i> <i>Pinus flexilis</i> <i>Pinus Balfouriana</i></p> <p><i>Picea Engelmanni</i></p> <p>33 species 26 genera 10 timber trees 24 shrubs</p> <p><i>Ribes aureum</i> <i>Cornus pubescens</i> <i>Sambucus glauca</i> <i>Lonicera involucrata</i> <i>Populus tremuloides</i> <i>Pinus flexilis</i> <i>Pinus Balfouriana</i></p> <p><i>Alnus incana</i> <i>Pinus contorta</i> <i>Pinus ponderosa</i> <i>Abies concolor</i> <i>Pseudotsuga Douglasi</i> <i>Juniperus occidentalis</i></p> <p>89 species 51 genera 31 timber trees 4 small trees 54 shrubs</p>

The following species, fourteen in number, are common to the three regions:—

<i>Acer glabrum</i>	<i>Ribes aureum</i>
<i>Rhus aromatica</i> var.	<i>Cornus pubescens</i>
<i>Prunus demissa</i>	<i>Sambucus glauca</i>
<i>Spiraea discolor</i> var.	<i>Lonicera involucrata</i>
<i>Cercocarpus ledifolius</i>	<i>Populus tremuloides</i>
<i>Amelanchier alnifolia</i>	<i>Pinus flexilis</i>
<i>Ribes cereum</i>	<i>Pinus Balfouriana</i>

The following species, twelve in number, are, in addition to those named above, common to the Rocky Mountain and Sierra Nevada regions:—

<i>Rhamnus californica</i>	<i>Alnus incana</i>
<i>Neillia opulifolia</i>	<i>Pinus contorta</i>
<i>Cercocarpus parvifolius</i>	<i>Pinus ponderosa</i>
<i>Pyrus sambucifolia</i>	<i>Abies concolor</i>
<i>Ribes leptanthum</i>	<i>Pseudotsuga Douglasi</i>
<i>Sambucus racemosa</i>	<i>Juniperus occidentalis</i>

All the species of the Nevada region extend into the Rocky Mountain region, with the exception of the following ten species:—

<i>Berberis Fremonti</i>	<i>Shepherdia rotundifolia</i>
<i>Prunus Andersoni</i>	<i>Spirostachys occidentalis</i>
<i>Spiraea millefolium</i>	<i>Populus trichocarpa</i>
<i>Rosa californica</i> var.	<i>Pinus monophylla</i>
<i>Fraxinus anomala</i>	<i>Juniperus californica</i> var.

† *Pinus monophylla* (Torr.), although it has found a foothold on the eastern flank of the Sierra Nevada, is not included among the trees of this region. This species, as well as *Artemisia tridentata*, are so peculiar to the Nevada region that they cannot be properly considered a part of the flora of the Sierra Nevada.

‡ Species which become large enough to be of economic value as timber trees are designated by a (*).

Populus trichocarpa is the only species (with possibly the two Willows) of the Nevada Region, which, in addition to the fourteen species common to the three Regions, extends into the Sierra Nevada. So that fifteen species of the Nevada Region reach the Sierra Nevada Region, while twenty-eight species extend into the Rocky Mountain Region, leaving but ten species peculiar to the Nevada Region. Of these *Fraxinus anomala* and *Shepherdia rotundifolia* are endemic; the other eight species extending south into Arizona.

The following genera common to the Sierra Nevada and Atlantic forests have no representatives in the mid-continental Flora:—

<i>Calycanthus</i>	<i>Leucothoe</i>	<i>Tsuga</i>
<i>Esculus</i>	<i>Rhododendron</i>	<i>Torreya</i>
<i>Cercis</i>	<i>Styrax</i>	
<i>Cephalanthus</i>	<i>Myrica</i>	

The following genera of the Sierra Nevada Region have no Eastern representatives:—

<i>Fremontia</i>	<i>Garrya</i>	<i>Castanopsis</i>
<i>Adenostoma</i>	<i>Eriodictyon</i>	<i>Sequoia</i>
<i>Heteromeles</i>	<i>Umbellularia</i>	<i>Labcedrus</i>
<i>Carpenteria</i>		

The absence of arborescent and frutescent Leguminosæ from the three Regions, where herbaceous genera of this order are so largely represented, is remarkable, especially as they abound farther south in New Mexico and Arizona. In the Rocky Mountain Region there is a single representative of this order, a *Robinia* nearly allied to those of the Eastern States; in the Nevada Region there is a single frutescent Leguminosa, and in the Sierra Nevada but one species, a large shrubby *Cercis*. On the contrary, the number of genera of frutescent Rosaceæ, many of them endemic and monotypic, is very large in proportion to other Angiosperms. In the Rocky Mountain Region there are thirteen genera with nineteen species; in the Nevada Region seven genera with ten species; in the Sierra Nevada Region eleven genera with thirteen species; in all, fourteen genera with twenty-eight species. In all the United States east of the Mississippi River there are but ten woody Rosaceous genera, all represented in our three Regions with the exception of the Southern *Chrysobalanus* and *Neviusia*.

The comparison of these three Regions with reference to the distribution of the Oaks will show how dependent these are on moisture. Oaks abound in both the Atlantic and Pacific forests, while in the Rocky Mountain Region there is but a single, exceedingly polymorphous species, which does not reach the Nevada Region, where no Oak is known; nor has this genus, so far as I know, any foothold on the dry eastern slope of the Sierra Nevada. A few insignificant species extend, however, along the mountains of Arizona and New Mexico, where the precipitation of moisture is more regularly distributed than farther north, and serve to connect the Oaks of the Pacific with those of the Atlantic forests.

The absence of *Pinus ponderosa* from the Nevada Region is remarkable. This species abounds in all the Rocky Mountain Region, and extends through New Mexico and Arizona to the Sierra Nevada, where, on the dry eastern slope, it constitutes in some of its forms fully three-quarters of the forests. It might, therefore, be naturally looked for on some of the higher mountains of Central Nevada, where, however, it has not yet been seen.

Pseudotsuga Douglasi, which also abounds in the Rocky Mountain Region, and on the higher mountains of New Mexico and Arizona, does not enter the Nevada Region. This is less remarkable, perhaps, than the absence of *Pinus ponderosa*, as this tree does not appear, in any numbers at least, on the eastern slope of the Sierras, and only reaches its noblest development in the humid climate of the north-west coast.

Juniperus virginiana, the most widely distributed of North American trees, ranges from the St. Lawrence River to Florida, and from the Atlantic to the Northern Pacific. It does not, however, enter the Sierra Nevada Region, and is extremely rare in Nevada.—“American Journal of Science and Art.”

WOODLAND WORK FOR AUGUST.

THE completion of all work connected with the usual spring fall of timber, such as the allotment, sale, and removal both of the timber itself and what is commonly called the “lop and crop,” should now leave the forester free to finish his summer pruning, and to make every preparation for the autumn planting. He should also avail himself of dry weather to cart to the saw-mill all timber intended to be converted for buildings and repairs. By mowing the wood-rides early, and brushing up their sides and making a general clearance at once, the game driven in by the operations in the harvest fields will afterwards remain in undisturbed possession of the necessary cover until the shooting season commences—a gain to the sportsman which it is almost impossible to overrate.

Besides the usual trenching and holeing, or pitting, for large trees, it will now be necessary to break up with the pick or mattock the spots in which smaller plants are to be hereafter inserted by notching. Pruning operations should finish up with such trees as the Birch, Maple, and the Gean, none of which should be touched until shortly before the fall of their leaves. The beauty of the last-named tree, both on account of its flowers in spring, its fruit in summer, and the deep red and yellow colours of its foliage in autumn, renders it worthy of more attention than it generally receives at the hand of the forester.

In ornamental plantations prepare for the removal of the larger evergreens, an operation which may be commenced after the middle of the month, and continued, during suitable weather, into the early part of October. Those first removed may require watering and mulching, and perhaps shading. Plant out *Arbutus*, *Laurustinus*, *Rhododendrons*, and with both these and the Firs take care to raise during the day no more than can be replanted, and keep them out of the ground as short a time as possible; also secure a good ball of earth around their roots. Continue to bud Thorns, Hollies, and Chestnuts, and to tread-up spring-planted trees which have become rocked and loosened by the wind. Make preparations for layering by cutting and preparing pegs, loosening the soil around the stools, and cutting away all superfluous shoots, so that when the operation is performed all the strength of the stool may be directed to the new layers, which will speedily take root.

In the nursery plant out cuttings of Laurel, Holly, Bay, Box, Yew, Privet; also two years' seedling Hollies, taking care not to break off the small root-fibres, and remove Laurels, Privets, &c., which have been raised from cuttings of a former season. Cuttings of this year's shoots, with an addition of about 1 in. of last year's growth, may generally be depended on; but where the soil is heavy, an addition of a little sharp sand will be found useful. Moist, but not wet situations, should be chosen, and the land should be well worked and lightly manured.

August is generally found a good month for new turfing old lawns, or sowing them down with Grass seeds. The following mixture has been found to answer the purpose well upon medium soils: Golden or Yellow Oat Grass, Sheep's Fescue, Wood Meadow, Evergreen Meadow, Rough-stalked Meadow, and Trefoil, 2 lb. of each; Hard Fescue, 4 lb.; White Clover, 7 lb.; Crested Dog's-tail, 9 lb.; common Rye, 10 lb.; in all, 42 lb.

Pay attention to broken branches in parks and on the margins of woodlands, and also watch tillers in exposed falls of the last winter. Look well after trees which have been grafted or budded during the present season, loosening bandages, and removing shoots from the old stock. Trim hedges of all kinds, and keep them free of weeds. Tree guards should be kept in good order, so as to keep back sheep as well as horses and cattle. During dry and warm weather paint or tar gates, stiles, posts, and fencing of all kinds.

Pluckly, Kent.

A. J. BURROWS.

Hedges.—There is one thing at the Handsworth Nurseries with which no practical gardener can fail to be struck, and that is the tall Beech and Quick hedges planted throughout the grounds for protection from cold winds, the situation being high and exposed. These hedges are exceedingly well kept, being quite close and impervious to the bottom, though long planted, and showing what can be made of a hedge by good management. The Quick hedges are about 10 ft. or 11 ft. high—as high as a garden wall, and some of the Beech ones are much higher, perhaps 14 ft. The ground is

thrown into large enclosures by these hedges, and in these all the tender shrubs are raised and nursed. I have seen many a private garden that would have been much benefited by such protection in the absence of walls or other shelter. The Beech is the best of the two subjects, however, as it requires less keeping, grows faster, and retains its dead leaves during the winter, thereby adding much to its sheltering power.—J. S. W.

NOTES OF THE WEEK.

Theropogon pallidus.—We have received specimens of this charming plant from Mr. Howard, of Southgate, who informs us that he has received an importation of it from India. It grows from 6 in. to 1 ft. high, and has Grassy foliage similar to that of an Ophiopogon. Its flowers much resemble those of the Lily of the Valley, but are rather larger and pink in colour. As it flowers later than the Lily of the Valley, it forms a capital substitute for the rose-coloured variety, though an absence of scent doubtless detracts from its merits. It is presumably quite hardy in this country, as it inhabits high elevations in the Himalayas, in Sikkim often rising to 10,000 ft. It is found growing on Mossy rocks, the bases of old trees, &c., where the roots spread superficially in the loose soil.

A New Lily (*Lilium auratum cruentum*).—This fine Lily is now finely in flower in Mr. Bull's nursery. In habit, and in the size and form of the blossoms, it is identical with the typical form. The ground colour of the flower is pure white, with a broad, deep crimson band down the centre of each petal, and the whole flower is copiously spotted with raised papillæ of the same colour. It affords a striking contrast to the ordinary form of *L. auratum*, and more particularly to the variety *virginale*, which has flowers spotlessly white, their chaste beauty being only marred by the golden stripes through the petals; this beautiful Lily is also finely in flower in this nursery. It would be interesting to trace the origin of *cruentum*, for, though it was imported direct from Japan, it probably, like its beautiful congener, *L. Parkmanni*, possesses some of the characteristics of *L. speciosum*.

Angræcum citratum.—This charming little species is now in full beauty in the Orchid houses in the Exotic Nursery, Chelsea. It is dwarf in habit, and has leaves arranged in two rows. The flower-spikes are from 6 in. to 9 in. long, and are produced from the axils of the leaves. The flowers measure about $\frac{1}{2}$ in. across, and have a spur about 1 in. long. The colour is a soft creamy white, with a mauve-coloured centre. They emit an agreeable perfume, a circumstance which much enhances their beauty. It is one of the most desirable of the small-growing Orchids for growing in a stove temperature. Like all the species of *Angræcum* it is a native of Africa, from whence it has recently been successfully imported in quantity by Messrs. Veitch.

The Scarlet Stonecrop (*Sedum sempervivoides*).—This fine hardy succulent is one of the brightest ornaments on the rockeries at Kew. Its brilliant scarlet Rochea-like blossoms fringed with yellow-tipped stamens, and borne on densely branched stems, are very striking. The habit of *Sant*, too, is remarkable, being so unlike that of the other kinds of Stonecrop. It has thick pointed fleshy leaves, arranged in a rosette-like tuft, as in the common House-leek. It is perfectly hardy, and will thrive on any well-drained rockery. It is a native of Asia Minor, Caucasus, &c., and is known also in gardens under the erroneous name of *Umbilicus Sempervivum*, which is a quite distinct plant, and belongs to another genus.

Rosa Brunoni.—Near the Cactus house at Kew a large bush of this charming Nepalese Rose forms a highly attractive object. It is rambling over the shrubs and trees near it, and is covered with its star-like, sweet-scented, white blossoms. It is one of the most suitable kinds for training on pillars or over arches, and is a capital Rose for the wild garden, where it can ramble about undisturbed. As a standard, too, it makes a handsome specimen, as may be seen by the fine plant of it in the arboretum at Kew, which is also a mass of bloom at the present time.

Lilium scintillans.—This is the name given to a remarkable variety of *L. elegans*, which we saw in Mr. Bull's nursery a few days ago. It is a dwarf form with flowers of moderate size, and faintly mottled with various shades of red and orange, quite unlike those of ordinary varieties. It is in the open air, associated with a large number of other kinds, which now make a fine display. Amongst the latter we noticed *L. Krameri*, Browni, most of the American kinds such as *L. pardalinum*, *canadense*, &c., the beautiful *L. eximium*, and the many forms of *L. elegans*, and notably the blood-red coloured form *L. atrosanguineum*. Along with these were also *L. Leichtlini*, *Martagon album*, *neilgherrense*, and the beautiful unspotted variety of *L. auratum* (*virginale*), with its pure white flowers

marked only with a golden stripe down the centre of each segment of the corolla.

Heavy Crop of Peaches.—Mr. Cowburn, of Sunbury Park, has sent us some excellent Peaches and Nectarines, which, he informs us, he has gathered from two trees that are bearing respectively 330 and 250 dozen fruits, which is at the rate of ten fruits to each square foot.

Iris Darius.—We omitted to mention last week that this beautiful Iris, of which we gave a coloured illustration, was raised in Mr. Parker's nursery at Tooting by Mr. Brown. It is one of the most desirable of Irises, being neat in habit, an abundant bloomer, and an effective plant grown in clumps and masses in the mixed border, margin of shrubberies, &c.

Importations of Dutch Bulbs.—These, we are informed by the Committee of the Society of Bulb and Seed Merchants at Haarlem, will be later this year than usual, the unfavourable season having caused delay in drying the bulbs. Purchasers must therefore allow their bulb merchants the necessary time for the delivery of the bulbs in a dry condition.

A New Holly.—Mr. Marnock sends us the leaves of a very fine Holly, which is about to be sent out by Messrs. Fisher, Holmes, & Co., of Sheffield. It is a green kind with very large leathery leaves. The same firm has also a Golden *Taxus adpressa*, which promises to be a welcome shrub, being well variegated like the Golden Yew, but of course retaining the habit of the green *adpressa*.

The Fringed Grass of Parnassus (*Parnassia fimbriata*).—We saw this rare bog plant in flower a few days ago at the Hale Farm Nurseries. Its kidney-shaped root leaves are somewhat like those of the *Asarum*-leaved kind (*P. asarifolia*), but its flower-stems are taller, and it has beautifully fringed white petals. It is growing in an artificial bog near the rock garden along with other moisture-loving plants.

Mucuna imbricata.—This handsome stove climber is now finely in flower in the Palm-house at Kew, where it forms a highly attractive object. Its dense clusters of deep purple Pea-like blossoms hang from the slender branches like bunches of Grapes. Though it is such a desirable decorative plant, it is too rank in growth to admit of its being grown in any but large houses. It is a native of Sylhet and by no means new, having been introduced to our stoves many years ago.

The Japanese Hyssop-leaved Dracocephalum (*D. Ruyschiana*, var. *japonicum*).—The desirability of planting hardy perennials in masses is well shown in Messrs. Veitch & Sons' nursery at Coombe Wood, where this plant is now in full bloom, and forms a highly attractive feature. This Japanese variety differs but little from the original, though it is apparently more robust, and develops larger flowers of a deeper purple hue. It is a fine border flower, perfectly hardy, and one which will grow in any ordinary garden soil without attention.

Meconopsis Wallichii.—This handsome Himalayan Poppy is now in full beauty in Mr. Ware's nursery at Tottenham. It is between 4 ft. and 5 ft. high, and forms an erect pyramid, the upper half of which is covered with pretty pale blue blossoms, which droop gracefully from the slender branchlets. It is also one of the most conspicuous plants in flower on the rockery at Kew, where it has withstood the severe cold of the past winter without the least injury.

Musa Ensete at Kensington Palace.—*Musa Ensete* planted out is producing a very fine effect at Kensington Palace. It would have been better, perhaps, had the plants not been placed at equal distances apart but thrown into two or three bold groups. The bedding out here seems to be of a very common-place order, consisting wholly of *Pelargoniums* rather overcrowded. The fine-foliaged plants are, however, well worth seeing, and will probably improve if we have a continuance of warm weather.

Masdevallia velifera.—This rare and singular Orchid is now flowering in Mr. Bull's nursery. Its leaves are about 6 in. long, erect, and of leathery texture. The flowers are borne on short, stout stalks, and are 6 in. across, in three alternated segments. The colour is olive-green, shaded with a deep bronzy tint, and the whole shining as if it were varnished. It is a native of Colombia, and is well worth including in collections with other curious species.

The Dangstein Sale.—The last portion of this fine collection was disposed of at Stevens's the other day. Some of the rarer kinds of Orchids realised good prices; amongst these, the true *Cattleya labiata* fetched from £10 to £30; *Dendrochilum filiforme*, £15; *Masdevallia towarensis*, £13; *Sobralia macrantha* from £11 to £13; *Masdevallia Estradae* from £8 10s. to £9 10s.; *M. Veitchiana*, £8 10s.; *Cattleya gigas*, £8; *Dendrobium Griffithianum* from £6 to £16; *Angræcum caudatum*, £15; *A. sesquipedale*, £8; *Masdevallia Chimera*, £5; *M. Harryana*, £4 to £6.

Lilies at Windermere.—The greater number of Lilies from Japan, India, and America which grow in my garden have not suffered from the severe and prolonged frost of last winter. Most of them are stronger than they were last year. *Lilium giganteum* has a stem 6 ft. 8 in. high and 6 in. in circumference at 18 in. from the ground. The spike is 23 in. high and contains fifteen flowers about 6 in. long. In spite of constant storms the beautiful foliage is almost uninjured.—F. CLOWES.

PLATE CXCI.

A GROUP OF CYCLAMENS.

Drawn by CONSTANCE PIERREPONT.

RATHER more than thirty years ago a writer in one of the gardening periodicals published about that time, remarked that "although the *Cyclamen persicum* has been upwards of a century in our possession, we do not seem to have made that progress in its cultivation which its merits would give us reason to expect." At that time the method of cultivation was not of a character to bring forth the highest qualities which this beautiful flower possesses, though there were not wanting those who were beginning to comprehend that the system of culture then followed was open to serious objection; and one noted grower of those days remarked, "that he held decided opinions against the summer drying or roasting of the *Cyclamen* then adopted." Many fine bulbs were lost by so doing; neither did they throw up so many nor such fine blooms as those that have not been forced to rest against their will as soon as they have done flowering. Nor can we wonder that such should be the case, seeing that the foliage is destroyed before it has laid up in the bulb a sufficient store of nutrition to sustain it through its forthcoming trial. In all probability this writer lived long enough to see his opinions put into practice; the roasting process in relation to the *Cyclamen* is now a thing of the past.

The coloured illustration of *Cyclamens* given in this week's number represents some of the finest and newest varieties, belonging to the *persicum* type, raised by Mr. H. Little, of Hillingdon, and Mr. H. B. Smith, of Ealing Dean. These two raisers have of late years obtained some most beautiful forms, large in size, stout in texture, and of varying colours—some very rich and deep; others exquisitely delicate, but all distinguished by high class quality. With finer flowers has also gone on simultaneously an improvement in habit, while the improved strains flower with especial freedom. What is known as the large-flowered type has increased with remarkable rapidity; the flowers are much larger than those of the ordinary *C. persicum*, and yet as freely produced, and the habit of growth as elegant. This large type generally produces flowers of soft hues, but there are indications that a much greater depth of colour is being secured. Messrs. E. G. Henderson & Son deserve honourable mention for the part which they took both in improving and popularising the *Cyclamen* thirty years ago. The work so laudably begun was taken up by others at successive stages of development, and thus it has been continued until at the present day many are cultivating *Cyclamens* and raising new varieties, and there is no lack of interest taken in such worthy work.

The old plan of propagating the *Cyclamen* by division of the corms or bulbous roots is rarely resorted to now, for the simple reason that a good variety is pretty certain to reproduce itself from seed. Propagation by division was rarely thoroughly successful. Names are now seldom given to particular varieties, and even when some fine kind is awarded a first-class certificate no attempt is made to increase the particular plant so distinguished. Its great value lies in becoming a pollen or seed bearing plant. Those who lay themselves out to obtain improved varieties, and especially those who breed for improved hues of colour, go systematically to work, carefully fertilising the seed-bearing flowers as early in March as possible, according to the weather—though it may be done as late as April. The earlier it is performed before that the less danger is there of the fertiliser's delicate work being neutralised by insects and other agents. Cross-fertilisation should be carried out when the sun shines brightly, and when accomplished the plants should be placed in a shady part of the greenhouse, but still having as much light as possible. No place, indeed, can better suit them than a shelf protected from the hot sun by wood-work, about 12 in. or 18 in. from the glass. The seed ripens at the end of July or early in August, and it is the usual practice to sow it as soon as it is ripe. It should be sown in shallow pans or in pots in a light, rich, sandy soil, and these should be placed in a house or frame where there is some bottom-heat, in a temperature of 65° or thereabouts. By the end of November the seedling plants will be large enough to be pricked off into 3-in. pots, placing a dozen or so of the plants in a pot, and still keeping them in a warm, moist atmosphere. During winter these

young seedling plants, whether remaining in the seed-pans or potted off, require to be kept in a warm house and near the glass where the temperature will not fall below 45°. It is necessary to screen the young seedling plants from the effects of hot sunshine during the months of August, September, and October by means of some shading material. The cultivator does wisely to push on his plants into growth as rapidly as possible, and to do this the more effectually he should pot off singly into small 3-in. pots as many of the plants as he can that are large enough to be so treated. During the dead of winter but little growth is made, but as soon as the days lengthen the plants make speedy progress.

About March or early in April a shift into a larger pot should be given, and those plants that remain in the store pots should be potted off singly as already recommended, and all should be put in a frame having a little bottom heat till the end of May, when they may be removed to a cold frame facing the south-east, be kept close for a few days till inured to their new quarters, and finally fully exposed by day. It is important at this point that the plants be not too much crowded. The *Cyclamen* is spoilt in appearance when the specimens are drawn, and by overcrowding they become so. The more space there is, reasonably speaking, the better developed and more symmetrical will the plants become. A model plant should have the leaves 4 in. to 6 in. in height at blooming time, with the flowers rising well and evenly above them. During the hot weather that usually prevails in July, August, and September, a sprinkling overhead should be given once in the forenoon, in addition to plentiful waterings at the roots according to the weather; the sprinkling should be done with a watering-pot having a fine rose, as an undue force or weight of water would cause the foliage to hang down and spoil its symmetry of arrangement. The cultivator should especially guard against putting the lights on the frame at night till the leaves are quite dry, or they become much drawn. The most forward of the plants thus treated will come into flower in October and November, and the later ones will furnish blooms till May. In this way the *Cyclamen* can be had in flower successionally for the space of seven or eight months.

Cyclamens will bloom for several years if properly treated, and some of the finest plants shown by Mr. Little, Mr. H. B. Smith, and others, have averaged from three to six and seven years of age. As soon as they have done flowering they should be kept in a shaded cool house or in a frame, kept as cool as possible, but on no account should they be allowed to suffer from drought. They pass through a season of rest, but that is a very different thing from roasting the plants well nigh to death in the sun. According to the time of flowering should the plants be re-potted. Those that bloom in the autumn should be re-potted in July; those in the spring, later. When re-potted, they should be placed in a cold frame and kept close for a few weeks. In a short time they push into growth, and soon begin to show their flower-buds, when they require to be grown on generously in a cool house, but on no account actually forced. It was once the custom to leave the bulbs in the pots for two or three years together without re-potting them; the only thing done was to remove some of the surface-soil in spring, and top-dress much in the same way as is done with *Auriculas*. Now cultivators agree in the necessity for and advantage of re-potting annually. In potting, the bulbs should be pretty well exposed in the soil, instead of being almost entirely exposed; the reason being that roots are put forth from the surface of the bulbs, and not from the base thereof, as was formerly imagined. The soil employed for *Cyclamens* in all stages is one consisting of two parts of coarse leaf-mould, the same quantity of light loam, one-fifth old cow manure (quite clear of insects), and sufficient white sand to keep it open. This makes just the light, rich soil which *Cyclamens* like, and in which they flourish when properly managed. Particularly do they appear to appreciate leaf-soil, and when the seed is sown it should be in the compost.

Many have failed with *Cyclamens* through unskilful management. Those who grow them in quantity should have a house wholly devoted to them, in order that a uniform treatment can be adopted. They are too often either roasted or starved. They like a genial temperature, with quickening warmth in autumn, winter, and spring. *Cyclamens* are unrivalled as winter and spring flowering plants, and they are most serviceable, owing to the long time the flowers remain fresh, both on the plants and in a cut state.

R. D.

Foxgloves at Kew.—Few plants, even at Kew, have been more admired of late than the stately Foxgloves, which spring up here and there in large masses amidst the low-growing shrubs with which they are associated. The rich colour of their blossoms, which varies from pure white to a deep purple, all being copiously spotted, has a charming appearance. Such plants as these, which perpetuate themselves freely from seed without the slightest care, ought to receive more encouragement, especially at Kew, where there is ample space for their full development.



A GROUP OF CYCLAMENS

GARDENING FOR THE WEEK.

Flower Garden.

The improved state of the weather has had a marvellous effect on all kinds of bedding plants, which at one time looked wretched in the extreme; they are now, however, brightening up. Such a cold wet season must necessarily induce us to reconsider this system of decoration, with the view of making greater use of hardy plants for summer bedding, seeing how short-lived are all such plants as Coleuses, Iresines, Alternantheras, &c. The maintenance of neatness will now be the main requirement—neatness not only of walks, shrubberies, and lawns, but also of every individual bed by picking off unsightly flowers, leaves, and seed-vessels, pegging, tying, and the like, according to circumstances and the form or design of each bed. Of course, allusion is here made to geometrical planting, to which, however much some may object, so long as it is geometrical, attention must be paid to keeping the form true as when first marked out on the soil. Even in mixed, or what may be termed promiscuous bedding, a certain amount of “dressiness” is necessary in order to obtain the best effect, such as not allowing tall growers to overrun the dwarfier plants, or the edgings and divisional lines to present a broken outline. This is a good time to fill up any spare space there may still be in mixed flower borders with seedling Wall-flowers, Antirrhinums, Pentstemons, and Sweet Williams. We generally plant them out in clumps of three or five plants together, and give them a good watering when they are first put out. All the attention required afterwards is protection from slugs until they have become well established. Herbaceous plants generally this season need more than the usual amount of attention as to ties and supports, and certainly as regards weeding, for hoeing has been impossible, owing to the constantly saturated state of the soil. Dahlias, Hollyhocks, and all large-growing sub-tropical plants should be frequently looked over, and be kept tied to stakes as growth progresses. Roses should have all decayed flowers cut off at least twice a week, an operation which will tend to the earlier production of a second bloom. Stir the ground about them deeply and if they lack vigour of growth, give a good dressing of guano; its effects will soon be visible in the darker hue of the foliage.—W. W.

Auriculas.—The remarks of Mr. Daniel Witter, of Denver, Colorado (p. 80), suggest a few observations on the insect pests and diseases of the Auricula. Many collections in Great Britain and Ireland have been attacked by mealy bug. It has not appeared in our collection at Loxford, but several collections with which I am acquainted are infested with it. One grower states that it nearly decimated his collection in 1877, but I hear from other growers that it does not injure the plants very much. My opinion, however, is that if it lives, as it undoubtedly does, upon the juices of the plants, it must in time injure them. The best way to get rid of it is to turn the plants out of their pots, and wash all the soil from their roots, then wash the roots and collar of the plants with soapy water, scrubbing out the interstices with a brush, laying the plants down, and in an hour washing the roots again with clear rain water; then repot in the usual way with clean soil. At this season a maggot, very similar to that which attacks the young growths of the Rose, eats its way into the crown of the plants, causing much damage. It can be destroyed only by watching for it, and killing it with the fingers. A smaller green maggot eats the under sides of the leaves, and must be killed in the same way. Green fly is a very troublesome pest, and must be destroyed as previously recommended.

Carnations and Picotees.—These ought to have daily attention. It will be difficult to get Carnation and Picotee fanciers to abandon the use of cards for their flowers. Some varieties, indeed, must have cards placed to them before the outer petals open: Daniel's Dreadnought and Eason's Admiral Curzon are flowers of this type. The cards prevent the petals from reflexing too much, and the colours are certainly shown up better on cards than without them. Every day it is necessary, too, to look to the flowers the calyxes of which have a tendency to split, and to open them out on the opposite side, tying them round with a strip of bast. Green fly will cling to the youngest buds, and it also attacks the young growths under glass; it ought, therefore, to be brushed off.

Dahlias.—If a Rose show can be held in August, when will it be best to fix the date of Dahlia exhibitions? A postponement until next year looks as if it would be the best arrangement. The plants seem healthy enough, but they are very late. The watering-pot has not, however, been required: under such conditions it is well to place some rich dressing over the roots. Guano speedily shows its effects; it is best to sprinkle the whole surface of the beds with it, and then work the ground over with the Dutch hoe. Fowls' manure used in a dry powdered state is also an excellent fertiliser, and over these dressings some rotten frame manure may be placed.

Gladioli.—I have written on previous occasions concerning the degeneration of the varieties of *G. gandavensis* in this country. I cannot think that it can be attributed to any other cause than the humidity and low temperature of our insular climate. The cold nights and autumn rains come upon the plants long before the bulbs are ripe and check their development. One good grower attributes the degeneration in question to the bulbs being too long out of the ground. There may be something in that, but it is certain that our climate is too wet and cold to ripen them perfectly. It would be well for some one to try and improve the early-flowering species, some of which are very fine indeed. Amongst a few of them exhibited by Mr. Elwes at South Kensington on July 22nd, one, a well-shaped flower with bright red petals marked with white, was singularly beautiful. Its name unfortunately was unknown.

Phloxes.—These are now showing flower; at least, such of them as have been grown in pots, and they will be useful for furnishing the greenhouse when the Pelargoniums are removed. The early-flowering section has done well this year, showing that a cool moist season suits them best. Under ordinary circumstances a grower near London would condemn the early-flowering Phloxes. One cultivator considers them delicate, but this is not the case, as they do exceedingly well in Scotland. They do not, however, withstand drought and heat, while the late-flowering section does not object to heat, provided they are well supplied with water at the roots.

Delphiniums.—If it is not intended to save seeds of these the seed-pods should be removed in a green state; this will cause the side stems to flower stronger.

Pentstemons and Antirrhinums.—These useful hardy plants are now coming into bloom, a condition in which they will continue until frost sets in. Tie the stems to sticks as they advance in growth, and as they do not require water at the roots this year, it will only be necessary to keep the beds in which they are planted cleared of weeds.—J. DOUGLAS.

Conservatory.

Indoor Aquatic Plants.—Aquatic plants are not nearly so much grown under glass as they deserve to be, and where they are cultivated they generally consist of stove species that require a high temperature; doubtless these are very beautiful, but the disadvantages attending them are that the more important kinds attain a large size, requiring a corresponding amount of space, and the sweltering heat in which they are grown makes the atmosphere anything but enjoyable during warm weather. No conservatory need be without a suitable place for growing such aquatic plants as will thrive in a usual greenhouse temperature. It may be formed by ordinary stone or slate slabs put together in the usual method, or it may be a wooden trough lined with lead, the outside of which, if desirable, can be covered with cork or other material to give it a rustic appearance. Its dimensions will require to be in keeping with the size of the house; a depth of 2 ft. will be sufficient, and I should advise the plants in a great measure being confined to pots, as the stronger-growing species will this way be under more control, and their arrangement can be altered at will, so as to avoid the, to many, objectionable feature of plants always occupying the same positions. Such a receptacle as that just described should be supplied with water by means of a pipe and tap that will give a slow trickle for some hours almost daily, with a corresponding outlet by an ordinary overflow, with means to convey the water away. In this matter there will be little difficulty if there happens to be a tank beneath the floor for holding the roof water. One of the most suitable plants for growing in conservatories is the Cape of Good Hope *Aponogeton distachyon*; its singular highly fragrant, Hawthorn-scented flowers emit the most agreeable perfume, and they continue in bloom through a great portion of the spring and summer. It should be grown in pots in loam and placed a few inches below the surface of the water, setting the pots which the plants occupy upon others inverted. A few examples of the Grass-like leaved *Vallisneria spiralis* may also be grown; its leaves when placed under the microscope show the circulation of the sap so well as to make them objects of interest. It will succeed in 6 in. or 8 in. pots, with a few crocks in the bottom, and filled with loam. The pots containing it may stand on the bottom of the tank. *Trapa natans* (the Water Chestnut) is another subject deserving of notice. It will grow in soil similar to that recommended for the *Vallisneria*, but it requires a larger pot. The North American white *Nymphaea odorata* will need a moderate-sized pot, and, associated with it, may also be the Chinese *N. pygmæa*, a white-flowered kind which will likewise succeed in loam and similarly treated. *Dietsa bicolor* is another plant that does well managed in this way. It should be potted in loam, and is distinct in habit. The North American *Orontium aquaticum* will be a good addition, as would also be the Chinese *Sagittaria sinensis*; loam, with a little sand, will answer for this.

To these may be added the green and variegated leaved Callas, which succeed well in loam, and may stand with their pots from 12 in. to 6 in. beneath the water, according as their heads will look best. These Callas should not be allowed to get too large; they may be divided yearly if necessary, and, if thought desirable, can be grown as ordinary greenhouse plants, and be introduced to the water when coming into flower and removed afterwards to make room for others. In this way a considerable succession of bloom may be kept up. There is always a charm attached to plants grown in water this way, but it is essential that the water be kept clean. Dwarf-growing Ferns, such as *Adiantum cuneatum*, *A. gracillimum*, and the taller *A. formosum*, together with the many crested forms of *Pteris serrulata*, *P. cretica albo-lineata*, and also the green *P. cretica*—the latter one of the best of all Ferns for bearing hard usage—may with advantage be interspersed amongst the dwarf-growing subjects grouped in this structure. All plants introduced to conservatories from warmer quarters must be carefully treated as regards water, which should only be applied at a temperature approaching that to which the plants have been accustomed; but they should receive no more than is necessary to prevent the soil from getting so dry as to cause them to flag.

Achimenes and Gloxinias.—Some of the latest-started that have received as cool treatment through the summer as they could be induced to make progress under, will, when beginning to flower, be in the best condition for standing in the conservatory, being careful not to admit the cool external air directly in contact with them. Where plants are arranged in groups on the floor, or on low table-like stages, it is always well to avoid the pots being more seen than is necessary; and, in order to effect this, sufficient numbers of *Isolepis gracilis* and *Lycopodium denticulatum* should be grown in 4 in. or 5 in. pots so as to stand as close as the pots will admit in the immediate front of the arranged groups. A good effect may be produced by introducing amongst these green plants *Coprosma Baueriana variegata* and small examples of the white-leaved *Centaureas*, together with anything else at hand that will take off the stiff formality of continuous rows of one or more kinds.

Greenhouse.

Plumbago capensis.—Few plants are so useful as this at this season of the year, grown in small pots, either for large conservatories, small greenhouses, or anywhere where blooming subjects are required. Plants that have already been in flower for some time will generally push up side shoots from the stronger branches, which make excellent cuttings, if taken off now and treated in the ordinary way; they will get established before winter, and will make serviceable flowering stock for next summer. A sufficient number should be prepared, as they are of much more use in a small than in a large state, and the delicate blue shade of the flowers furnishes a colour which we need, and which harmonises well with everything else it is associated with.

Fuchsias.—These, so generally useful for almost every purpose, and so easily grown, are, nevertheless, with few exceptions, worse managed than the majority of other plants. The fault ordinarily lies in retaining scraggy samples devoid of lower branches, and which, despite whatever flowers they may bear, are far from having so good an appearance as young, well-furnished plants with branches hanging gracefully down so as to almost hide the pots. They strike, too, like weeds, and the present is the best time in the year for putting in cuttings in order to get young stock that will bloom as early in the spring as is required in a comparatively small state; or they may be grown on at the option of the cultivator to as large a size as may be considered requisite for later flowering. Shoots that have formed bloom root indifferently, and never make good plants. Young growths should be chosen from near the base of the stronger branches. Put these say half a dozen together in 5 in. or 6 in. pots, drained and filled with sandy soil, covering with a bell-glass. Keep them moist and shaded in a little warmth. Take care that the cuttings previous to insertion are free from aphides and red spider, especially the latter, to which Fuchsias are subject at this time of the year. Out of the many fine varieties that now exist there need be no lack of choice; but there is a great difference in their inclination to flower early. Amongst all that have been raised, none find so much favour with market growers as regards their early free-blooming disposition as the white rose-corolla'd variety called Mrs. Marshall (syn. *Arabella*) and the crimson kind, with violet corolla, named *Try Me O*. The plants which bloomed early, and which are now getting shabby, should be turned out of doors for a fortnight, and should receive no more water than will keep them from flagging too much; then let their side branches be well shortened in and the main stem slightly reduced, giving a good washing with Tobacco water, to which a little Gishurst has been added so as to free them from aphides, thrips, and their eggs, and then put them in a pit that can be kept close and slightly shaded. Thus treated, and

syringed overhead daily, they will quickly break into fresh growth. If in comparatively little pots, they may have a small shift; but if they have sufficient room already, weak manure water will answer. Under this treatment they will again get well furnished with branches that will keep on flowering until the end of October or later, and they will be found very serviceable for greenhouse and conservatory decoration, as well as for cutting, in which condition their flowers will last much longer than earlier in the season.

Petunias.—The beautiful single forms of these raised from seed sown early in spring furnish useful decorative flowering plants through the summer for conservatories and greenhouses; but their natural straggling habit is a defect that does not exist in the double-flowered kinds. The latter keep on blooming for months without getting at all denuded of their leaves or unsightly. These are increased by means of cuttings, which, for flowering next year, should be put in now, selecting for the purpose the young soft shoots that will generally be found springing from near the base of the plants now in bloom. Treated in the usual way they will root in a few weeks, when they should be moved singly into 3 in. pots into sandy loam, and placed through the autumn and winter on a shelf near the glass, where they will keep on making slow progress, and be in a proper state for moving on early in the spring. Petunias both double and single that have been blooming for some time will be much benefited by the use of manure water.

Vallota purpurea.—This beautiful plant is one of the most useful which we have through this and the succeeding month, as where a sufficient stock of it exists there is no difficulty in having it to come in in succession during that time. It is most serviceable when grown in from 6-in. to 9-in. pots, with from a couple to half-a-dozen bulbs in each, as it does not like too much root-room. After the flower stalk first shows itself the blooms come on very rapidly, and where a succession is needed a portion of the plants may be retarded by placing them in a frame at the north side of a wall, where they will be little under the influence of the sun. The Vallota is a plant that requires to be kept always moderately moist, especially when exposed to sunshine; but whilst in chilly quarters it must not be kept overmoist. Attend to advancing stock of this plant taken off in the spring from the larger bulbs; give all the light that a good well-glazed house affords and plenty of water, by which means the bulbs will increase to a blooming size much quicker than if subjected to comparative neglect.

Late Heliotropes.—Plants of these propagated in spring will now be found useful for blooming late in the autumn when flowers are scarce. They are always acceptable both on account of their colour and perfume. To have them in a condition to bloom freely they must be well attended to; when their pots are full of roots manure water will much assist them. The old variety is still a general favourite, but under glass rather light coloured. *Etoile de Marseille* is a fine kind as regards colour, as is also *Madame Fillion*. Standard and other large plants that have bloomed for a considerable time under glass should be supplied weekly with manure water sufficiently diluted, as by no other means can plants that continue through the season producing a succession of growth and flowers be kept in the vigorous condition which is essential not only to their healthy appearance but to enable them to bear the full amount of bloom of which they are capable.

Chrysanthemums.—The time is now come when Chrysanthemums want the most careful attention, without which, no matter how well they have been treated in the early stages of their growth, or what may be subsequently done for them when nearer blooming, they will fail to give satisfaction, for, now as their pots are getting full of roots, should there be any neglect in not keeping the soil sufficiently moist, or in supplying them with liquid manure regularly, they will neither retain their foliage in a fresh healthy state down to the base, nor will they produce such a head of fully developed flowers as they otherwise would do. Where the plants are plunged see that the roots do not grow through the bottoms of the pots. Keep the branches regularly tied so as to avoid breakage through wind, and place them sufficiently far apart in a light position to prevent them becoming drawn, and to admit of getting amongst them to water and syringe them, which latter operation should be practised in the evening of every dry day.

Pelargoniums.—The earliest-flowered large varieties of these that were turned into the open air recently should, now that the lower part of their shoots will have assumed a hard brown colour indicative of the necessary ripened condition, be cut down, leaving two or three eyes (according to the size of the specimens) above where the shoots spring from, and as soon as the heads are thus removed place the plants in a pit or frame, where they will be protected from too much wet; keep them a little close and syringe them overhead daily. Thus managed they will push young growths forthwith. The fancy varieties may be treated in a similar manner, but

they do not require (nor will they well bear) cutting in nearly so close as the large-flowered kinds, and in their case it is even more necessary to be careful that the roots do not get too wet.

T. BAINES.

Hardy Fruit.

The gales of wind and rain which occurred on the 19th and 20th ult. made a final clearance of all fruits likely to fall off ere they were fully grown, and so did not prove an unmitigated evil: certainly all that weathered such storms may be expected to attain full growth, and therefore no further injunctions as to thinning out the fruit are necessary. The excessively wet condition of the ground is causing Cherries to burst before they are sufficiently ripe, and doubtless this will be the case with other kinds of fruits as they approach maturity. It will be advisable, therefore, not to attempt to keep them, but gather them as soon as they are ripe enough for preserving. Strawberries have proved better than, under the circumstances, could have been expected, for though a large percentage rotted, the crop was so large that a portion could well be spared. The plants should now be cleared of runners and the ground "pointed" over. New plantations may also be made, either with forced plants or newly-formed runners. Deeply and well enriched ground is indispensable to the production of fine Strawberries. The season has suited Raspberries, which are wonderfully fine, and the plants are making extraordinary growths; it will therefore be absolutely necessary to thin out the new canes to the minimum point—about three to each stool—and, as soon as the fruit has all been gathered, any of the old canes that interfere with the full development of the new growths should be removed. In order to prevent injury from wind, the new canes should also be tied in at once. The new shoots and points of cordon and espalier-trained trees of Apples and Pears may likewise now be tied in. Spur back all growths not required for furnishing the trees to within three joints of the old wood, an operation which, combined with partial root-pruning at the proper season, will conduce to fruitfulness. The majority of Peaches and Apricots may now have the current year's shoots laid or tied in to the wall, but previously pinch closely back all sub-lateral growths that have formed on them. Any trees that have suffered from the effects of last winter's severity, and which have not yet fully recovered their former vigour, may still be left to grow unrestrictedly, but no fruit must be expected from them next season. Keep down aphides and red spider by occasional syringings with soap-suds or a weak solution of Gishurst Compound.—W. W.

Parks and Open Spaces.

No pains should be spared in maintaining shrubberies and herbaceous borders free from weeds, which the wet weather which we have lately experienced has rendered a continuous work, nothing short of digging in or hoeing up and raking off having availed to keep them in anything like good order. It will be advisable, now that trees and shrubs are at their best as regards foliage, to mark those which can with advantage be removed during the winter. A much better idea of the natural arrangement of foliage can be arrived at by this means than if left until the deciduous kinds have lost their leaves. The same remarks as regards observation apply to those who may contemplate planting, either in groups or singly, weeping and other trees round the margins of lakes. Many excellent herbaceous plants are now blooming profusely, and care should be taken that their flower-stems are secured where necessary to light stakes; where this is neglected the beauty of the display is often lost, owing to their being broken in consequence of the weight of their flowers, or to their lying close to the ground, as in the case of Carnations and Picotees, especially in wet seasons. All decayed flower-stems should at the same time be removed, and the seed-heads of such plants as *Heracleum* should be cut off and destroyed, as from their prolific nature they will cause some inconvenience.

Cricket and croquet grounds which have been properly made, especially as regards drainage, should be available for the purpose for which they were formed at all times during the season, except after heavy rains, in which case a few hours should be allowed for the surface-water to soak down. The Grass should be frequently mown, for, if neglected, long Grass has a great tendency to destroy the turf. It is well to have a quantity of turf available and to constantly replace that on spots in which it is sure to be destroyed. It is a mistake to suppose that cricket or croquet grounds can be made too dry; drains are extremely beneficial in wet seasons, and with due care they are not detrimental in dry ones. The secret of maintaining a durable and suitable turf lies in dressing, watering, mowing, and rolling as often as may be necessary; a few inches of good soil—that of a fibrous texture being the toughest and best—upon a gravelly or otherwise well-drained base, will form the best surface. When much used in the course of the season, such grounds should, if possible, be given a rest during the whole of the winter months.—C. DENNIS.

Extracts from my Diary—August 4 to 9.

FLOWERS.—Nailing in young shoots of Camellias on back wall of Peach-house. Potting Poinsettia and Begonia seedlings. Thinning out Primulas, in order to give them more light and air. Putting in cuttings of Fuchsias for winter blooming. Sowing herbaceous Calceolarias. Re-arranging plant-houses. Putting in cuttings of Roses of the current year's growth under hand-lights on the north side of a wall. Propagating bedding plants for next year, beginning with fancy Pelargoniums. Shifting small Chrysanthemums growing for late use out of 3-in. into 5-in. pots.

FRUIT.—Gathering all Apricots and Plums that are ripe. Planting last plants of Netted Victory of Bath Melon in pots and setting them in Pine stove in place of pot Vines, shifted from there, where they have been grown, to a lighter house to ensure ripening. Potting Strawberries for fruiting next year. Trenching ground for Strawberries for the next plantation.

VEGETABLES.—Digging up all early varieties of Potatoes. Planting large quarter with Cabbage; also Brown Cos Lettuce. Clearing up Potato haulm; also rubbish off Strawberry beds, and preparing for crops of Winter Greens. Planting out Little Pixie Cabbage and Rosette Coleworts. Tying and stopping Cucumbers. Sowing more Little Pixie Cabbages on south border. Nailing and stopping Tomatoes on walls outside. Sowing Mustard and Cress. Thinning out superfluous wood of Cucumbers. Cutting all herbs wanted for drying for winter use, and storing them in fruit room. Shelling Peas placed in fruit-room to dry for early use next year. Planting out Tom Thumb Lettuces between Celery trenches. Planting out last batch of Major Clarke's Celery. Gathering seeds of Burghley Broccoli to dry. Gathering Scarlet Runners that are ready.—R. GILBERT, Burghley.

NOTES FROM CALIFORNIA.

The Beurré Coit Pear.—This is a native American Pear which has gained a good character. It was originated by Col. Coit, of Ohio. The report of the department of agriculture says "It is of such excellence as to deserve a place in all collections," and Downing gives it a good name. The tree is a hardy, vigorous, and upright grower, becoming spreading as it matures; it has dark brown shoots and broad waved leaves, with rounded serratures, and is productive, and comes early into bearing on the Pear roots.

A Large Oleander.—Mr. Griffith, of Yolo County, lately showed us the largest Oleander it has been our fortune to find hitherto. The trunk is about 11 in. in diameter at the surface of the ground, and fully 8 in. in diameter at the parting of the branches, which is 2 ft. above the ground. The head is wonderfully large and symmetrical, and is supported by bars nailed in the form of a square, and lifted up on posts set near it. Being in full bloom when we visited it, the effect was that of a superb bouquet of Brobdignagian proportions.

The Double Red Pomegranate.—We lately saw some large specimens of this remarkably handsome shrub. The double kind is better than the single, for the flower is larger and lasts much longer. The Pomegranate is a sort of classic shrub. Planted upon the hillsides of Pleasant Valley, with the sleepy blue of the mountain ranges beyond, it gives the place an air of Asia Minor. It has the glossiest of leaves, and the most graceful of drooping branches. Sometimes a bush looks like a fountain perpetually flowing, and, at this season, lit with flashes of scarlet fire. Then, also, the leaves grow golden-yellow in autumn, and add another, though evanescent attraction. Now, let whoever has a spare corner plant a double Pomegranate next winter.

Cacti on Rocks.—One day, not long ago, as we rode slowly up a winding mountain road, we passed a cottage surrounded by Vineyards which covered a rounded hill near the house, and crept far up the mountain slopes until the soil became scanty, and rocks thereafter possessed the ridges. Pink wild Roses covered the rude fence of slowly decaying logs, and close beside the cottage was a rugged pile of weather-beaten rocks, in whose crevices Vines clung and tangled, while, on its sunnier side, a dozen brilliant scarlet-blossomed Cacti had been planted. That one flash of Cactus colour, which, as our readers know, is indescribably velvety and glorious, was the central point in the landscape, and yet found a sufficient relief in the rays of soft green on the summer hillsides, and in the deep masses of entangled Vines about the base of the rocks, which even half hid the scarlet flashes. Is there no suggestion here for our own wild gardens? Let us try something similar if there is any rocky point, or southern slope, intensely hot during summer.

The Growth of Horticulture.—As we, this summer, have been travelling through the central and northern counties, there has

been a distinct and very gratifying impression of improvement, on the whole, in country gardens. More flower gardens there are now, most certainly, than there were two or three years ago. People are beginning to improve their places. We are not any longer a State of campers; we are home-builders; we mean to stay here and eat the fruit of our own orchards, and pick the Roses of our own gardens. This is, certainly, a very hopeful state of affairs, which to encourage is our duty and delight. No depression in business or excitement in politics can alter the currents so strongly setting in towards horticultural pursuits.

Piedmont School Gardens.—Last month we advocated the planting of flowers in school-yards, and a most gratifying instance of ornamenting school-grounds has recently been brought to our notice. At Piedmont, in Alameda County, the grounds belonging to the school have been laid out in symmetrical beds, and planted with trees, shrubs, and soft-wooded plants. So far everything flourishes, and children help to take care of the flowers, and prospects are bright indeed. Mr. H. P. Livermore, one of the trustees, sent five two-horse loads of plants as a gift, and had them planted at his own expense.

Tomatoes from Cuttings. We were shown a beautiful and thrifty Tomato plant in a garden recently, and were desired to "look at it hard," but, failing to discover ought else than Tomato leaves and blossoms, came back upon our querist with a Yankee-like reply of "What is it anyhow?" Well, it was grown easily and rapidly from a cutting of new wood, and, we are told, this is done to a considerable extent in the southern counties. We are not aware that any one, even in warm localities, has tried this plan for market plants. It might be cheaper than seeds, but we should hardly think so. If, however, a chance seedling should show marked advantages, this method would ensure its perpetuity.

Mr. Blowers' Vineyard.—At Woodland, in Yolo County, is one of the most successful Vineyards of our State. Mr. R. B. Blowers became interested in the problem of Raisin-making some years ago, and was the first to produce a good marketable raisin on this coast. The Grape used for Raisins is the Muscatel, which is preferred to the Muscat of Alexandria, probably the next best variety. Mr. Blowers' vineyard is situated on a fine level tract of land near the town. An irrigation ditch takes water from the Creek, whenever it is thought desirable. This is only used for flooding the Vines in winter in order to prevent the Phylloxera from establishing itself. No irrigation is needed for any other purpose, the Vines making a luxuriant growth, and bearing heavily without it. They average, acre after acre, forty pounds to the Vine. The Grapes are allowed to get fully ripe, and are then gathered and placed on trays made of boards, about 3 ft. by 2 ft. square. One of these is set by each Vine, and is tilted towards the south by a clod of earth placed under it. If the season is favourable, the first crop of Grapes can be dried in this way. If not, the trays and their contents are taken to the drying house, where the second crop, at least, is mainly dried. This drying house, Mr. Blowers' patent, is a compact, effective, and economical affair. It is better adapted to Raisins than any other style we have seen, on account of the dry heat used, its evenness, and its perfect control. In this Vineyard we also saw several acres of the Emperor Grape, probably one of the best for shipment to a distance. This Grape is a shy bearer, but, by close pruning and tying the new growth up each year, it has done better than usual here. The leading foreign varieties are represented, but not in large numbers. This is a "Raisin farm."

The Oak Shade Orchards.—Our friend, Mr. J. B. Saul, nurseryman and seed-grower in the earlier days of California, is one of the owners of the Oak Shade Orchards near Davisville. Three hundred and twenty acres here are almost entirely devoted to fruit trees and Vines. The avenue up which one rides, is of California black Walnut, a beautiful tree, and of more rapid growth, in the warmer parts of our State at least, than is the Eastern species. There are 12,000 Pear trees, most of them beginning to yield well. The four leading varieties are Bartlett, Winter Nelis, Doyenné D'Alençon, and Beurré Clairgeau; Easter Beurré and Glou Morceau are grown in lesser quantities. These Pears are shipped eastward, and were planted for that purpose. The trees are mostly young, and not in full bearing condition. Portions of them are budded on seedling stock, planted in permanent form some years ago, and this, it is thought, will make more lasting trees. A large portion of the orchard is devoted to almonds of the Languedoc variety. We may remark that we have particularly observed the condition and prospects of the almond wherever found, and, in many localities, must pronounce it a failure, so far as bearing properties are concerned. But there are many other places where the Almond promises to succeed well; in Pleasant Valley, at Mr. Thurber's, the prospects are encouraging; the same is true near Woodland, and also here at Davisville. The Almond, when it does succeed, pays so well that it is worth while

for any man to test it if he has any sheltered nook free from chilly winds and late frosts. The Vineyard covers fifty acres, and most of the produce is made into Raisins.

Bearing Pecan Trees.—On Mr. Briggs' large fruit farm, half a mile south of Davisville, we saw some forty thrifty and well-grown Pecan trees in bearing. They are eleven years old, and are considerably larger than English Walnuts of the same age, which stand near them. They were heavily loaded with tassels of bloom, but the nuts, which form in hanging clusters on the tips of the young wood, had not yet appeared. The Pecan, Mr. Briggs thinks, might be made a profitable tree, although the Almond, where it succeeds, is better. A handful of last season's growth, taken from the sack without selecting, was finer in flavour and larger than any imported which we have ever seen. The Pecan is a handsome and fruitful tree. Small trees must be chosen to plant, as large ones are hard to move safely.

A Fig Orchard.—In Yolo County, not far from the snug little town of Winters, there is a Fig orchard of some twelve acres in extent. The location is level, soil a good loam, 15 ft. above the water. The variety mainly used is the black California Fig, which has dried most easily. Indeed, one is surprised to learn how little trouble has heretofore been taken. The Figs have merely been allowed to ripen, fall on the ground, and dry there. They are then picked up, rinsed in warm water, sacked, and sold in bulk. If, in this rude way they pay at all, it is evident, we think, that by careful preparation and packing in small boxes, they would yield a handsome revenue. The temperature in the neighbourhood of this orchard was over 103° Fahr. on the three first days of last June, so that the summers may, without exaggeration, be called warm.

New Early Peaches.—This month there is an abundance of good and cheap Peaches, but none of our readers will have forgotten how high priced are the earliest Peaches whose arrival is with much ardour published by the daily press. Some time in May, earlier or later according to the season, the first Peaches appear from the vicinity of Putah Creek, Pleasant Valley, or Marysville. Briggs' Early May, a well-defined seedling of Californian origin, also the Amsden and the Alexander, both eastern Peaches of good quality and colour, are by this time well known. Another new Peach, as yet but little known, is Hale's Advancer, a seedling which originated on Putah Creek. It is quite as early as Briggs' May, and is somewhat larger. If it were not a shy bearer, and liable to sport, in other words, not yet of a fixed type, it would be termed an undoubted acquisition; as it is, it deserves experimenting with. The Waterloo and Brice's, both of which have received mention heretofore, are being tested in this State, and may possibly fruit next season.

A Cherry Orchard.—Early in May we visited the orchards of Messrs. Bassford & Sons, near Vacaville, Solano County. It is a beautifully improved and sheltered place, at the head of a ravine, and is fitly named Cherry Glen. We saw acres of beautiful trees, well grown, well trained, and loaded with ripe fruit. The leading variety grown is the Black Tartarian, for years the standard variety in our markets. Next in popularity come the Royal Ann, or Napoleon Bigarreau, the Elton, and the Mayduke. All these we observed in full perfection. The finest early Cherry is the Purple Guigne, a variety of quite recent introduction into this State. The Cherry trees are trained low, with trunks of not more than 2 ft. in length, and the side buds are allowed to grow, forming a shelter of sprouts around the trunk. The heads present a very uniform appearance, and are kept cut back evenly on the top, so as not to become unmanageably tall.

Protecting Grapes.—Mr. Scarborough, of Cincinnati, has communicated to the secretary of the Ohio Horticultural Society the following method of protecting and maturing Grapes, as used by Mr. Gotlieb, of Cincinnati. Just after the young Grapes were set, he enclosed 2500 bunches in bags made of yellow Manila paper. The bags were fastened by two or three pins. The cost of the bags, pins, and labour was about one-third of a cent per bag, but on a larger scale would be proportionally less. The advantages claimed are protection from insects, finer flavour, and immunity from rot. Muslin bags may also be used, and would be serviceable for several years.—*California Horticulturist.*

A Happy Old Pear Tree.—At a recent entertainment in a school at Chicago a letter was produced written by Mr. Longfellow, in which he said, in answer to a letter sent to him:—"I can only send you and the boys and girls under your care a friendly salutation. To those who ask how I can write 'so many things that sound as if I were as happy as a boy,' please say that there is in this neighbourhood or neighbouring town a Pear tree planted by Governor Endicott 200 years ago, and that it still bears fruit not to be distinguished

from the young tree in flavour. I suppose the tree makes new wood every year, so that some part of it is always young. Perhaps that is the way with some men when they grow old; I hope it is so with me. I am glad to hear that your boys and girls take so much interest in poetry. That is a good sign, for poetry is the flower and perfume of thought, and a perpetual delight clothing the commonplaces of life 'with golden exhalations of the dawn.' Give all my sympathy and my good wishes."

THE FLOWER GARDEN.

SINGLE AND DOUBLE FRENCH ANEMONES.

THE diversified floral hues which the ordinary *A. coronaria* assumes, combined with its elegantly cut foliage, place it amongst the most popular of border flowers; and the length of time during which the blossoms continue to be produced considerably enhances its value. Those represented in the annexed illustrations are known as French kinds—sorts that are largely grown at Caen and in other places in France, and which are considered to be superior to the Dutch varieties. There are now a host of kinds of Anemone representing almost every shade of colour, from pure white to intense purple and the most brilliant scarlet. They have, too, a striking variation in the duplicity of their blossoms, from the single forms pure and simple to the compact dense rosettes of the best double forms, and the Chrysanthemum-flowered kinds, in which all the stamens are converted into narrow petals, which incurve so as to assume a globular form. The Poppy Anemones, as those here represented are generally called, may be grown in any ordinary garden soil, though they succeed best when planted in a light loam enriched with well-decomposed manure. The border on which they are grown should be thoroughly drained, and the soil before planting should be dug at least 1 ft. in depth. The tubers should be planted either



Single French Anemones (Vilmotin).

in October or from February to the end of March; the former date is the best, as the flowers are produced earlier and the plants are more robust. The advantage of spring planting is that a succession of bloom is obtained until June. When the foliage is dead and the tubers thoroughly ripe, they should be taken up, carefully dried, but not in the sun, and stored in a cool airy place till the time of replanting arrives. During severe weather in winter, it will be necessary

to protect the borders in which they are planted with Bracken, straw, branches, or similar material. Propagation is effected either by dividing the tubers at the time of planting, or by raising plants from seeds, which in some seasons are produced plentifully. The



Double French Anemones (Vilmorin).

seedlings generally flower the second year, and it is an interesting occupation to watch for those which may possess more merit than the existing varieties. G.

THE BREAKING OF TULIPS.

MR. Laxton asks (p. 80) "whether the seedling Florist Tulip, when fertilised solely by its own pollen, will require the usual period to break." There is no such thing as a set or usual period in this unique physiological change that is sure to occur sooner or later in the life of a Florist Tulip bulb. Any offset of a Tulip still in breeder form may break before or after the mother bulb. It may break while yet too young to bloom, showing that fact in advance by the change in its solitary leaf from a solid to a mottled green. If the mother bulb has "broken," say in the current year, the offsets which it has formed this year will be broken also, and be perpetuations of the exact strain of the parent bulb. Those thrown off in the previous year or years will go on in their own independent paths as so many breeder forms of that same sort, till in their own uncertain turns they also "break," and in so doing form so many other strains of the same name as the original bulb that was noted for good, and named once for all, at its maiden bloom any number of years back. It matters nothing, so far as breaking is concerned, whether the flower has been fertilised with its own pollen or not. Presumably, the advantage of a complete cross with another variety in the same class will have been secured by the raiser of thoroughbred seedlings, but he can place no confidence in there being any exciting cause of quicker breaking in this important operation.

I have raised seedlings of the Florist Tulip from time to time within the last twenty-five years, and sometimes both parents were breeders, in other cases one was a breeder and the other a rectified flower, while in other instances both parents were broken flowers either feathered or flamed. In all these cases, as any Tulip raiser knows it would be, the vast majority of seedlings began to flower as "breeders" or selfs. Some, in the course of the years of their bloomless childhood, showed by their mottled Grass that their first bloom

would be a "break;" whilst in instances more rare, a seedling would break just when it first bloomed, and so, like those mentioned immediately before, could be said never to have had a breeder at all.

Perhaps this record of an experience with the Florist Tulip will help to show that Mr. Laxton's second question whether "the seedlings are fixed from the period of their first flowering" cannot be answered in the affirmative except in cases where the maiden bulb has happened to bloom for the first time as a broken flower. There can then be no other strain of that sort possible, all subsequent off-sets being but an increase of that particular strain. Hence it is only such increase as is given off before a break, *i. e.*, while the parent is in the breeder state, that can produce fresh strains, as being so many breeders that have yet to break.

I have been tempted sometimes to cross a Tulip, breeder or broken, with its own pollen, because of the extreme beauty of the parent, and as wishing for more flowers of that stamp, but the effect has not been to make the produce break perceptibly either more or less freely than any complete cross. Distinct as the classes of our Tulip are, yet a pod of seed from any one will give seedlings in them all, together with a large proportion of intermediate flowers, useless to florists, and called tricolors because of the colours of more than one class being mingled in them—*e.g.*, the base of a bizarre with the ground of a byblemen, breaking into a yellow, violet, and white permanent condition. Old David Jackson once sowed a pod of seed from Aglaia, a venerable scarlet and white flamed and feathered sort that requires a few days to bleach the creamy tint out of its base. Who did not feel for honest, patient David when these seedlings bloomed as a shoal of yellow selfs? FRANCIS D. HORNER.

Kirkby Malzeard, Ripon.

ALPINE PLANTS AT EDINBURGH.

HAVING derived much pleasure from perusing, in THE GARDEN of the 21st ult., the two very interesting accounts of Alpine and rock plants grown in Yorkshire and in Kent, I have thought that a list of some of those which I lately saw thriving and flowering on a rockery in the nursery of Messrs. Dicksons & Co., Pilrig Park, Edinburgh, after the past severe winter and backward spring, might be of interest to readers of THE GARDEN who cultivate these beautiful hardy plants on this side of the Tweed. I may mention that the Messrs. Dickson informed me that they had constructed the rockery on which the plants were growing solely for the purpose of keeping up a supply of stock of Alpine plants for their nursery, and that they had made it by placing large stones at irregular intervals over the surface of several oblong mounds of earth, as many compartments for the plants as possible being left between the stones. Although the soil of the mounds did not appear to me to differ in any respect from that of the ordinary nursery ground, the plants were all growing most luxuriantly, and were in many cases covering the stones with their foliage and flowers.

The following is a list of the plants, the greater part of which were in flower at the time of my visit:

<i>Achillea Clavanne umbellata</i>	<i>Erigeron atro-purpureum</i>	<i>Polygala Chamæbuxus purpurea</i>
<i>Allium McNabianum Moly</i>	<i>Erius hispanicus</i>	<i>Primula cortusoides</i> (of sorts)
<i>triquetrum</i>	<i>Geranium arvense capitata</i>	
<i>Andromeda polifolia tetragona</i>	<i>cinereum farinosa</i>	
<i>Antennaria hyperborea tomentosa</i>	<i>Geum coccineum fl.-pl.</i>	<i>luteola</i>
<i>Anthyllis montana</i>	<i>Globularia vulgaris</i>	<i>Munroii</i>
<i>Aquilegia (various)</i>	<i>Gnaphalium leontopodium</i>	<i>scutell. &c.</i>
<i>Arenaria haleutica purpurascens</i>	<i>Helianthemum vulgare, &c.</i>	<i>Ranunculus speciosus uniflorus</i>
<i>Armeria maritima alba</i>	<i>Houstonia cærulea alba</i>	<i>Rhododendron ferrugineum</i>
<i>Astragalus hypoglottis albus</i>	<i>Hyacinthus amethystinus</i>	
	<i>Iberis corifolia</i>	<i>hirsutum</i>
	<i>gibbaltica</i>	<i>Rosa bracteata</i>
	<i>monspessulanus</i>	<i>pyrenaica rugosa</i>
<i>Aubrieta Campbelli grandiflora</i>	<i>Iris obliquens, &c.</i>	<i>Saponaria ocymoides</i>
<i>Hendersoni, &c.</i>	<i>Lilium monadelphum, &c.</i>	<i>Saxifraga cespitosa</i>
<i>Caltha palustris fl.-pl.</i>	<i>Linum flavum</i>	<i>hirta</i>
<i>Campanula Allioni garganica</i>	<i>Lithospermum prostratum</i>	<i>grandiflora fl.-pl.</i>
<i>pulla</i>	<i>Minuartia cupressis</i>	<i>Guthrieana</i>
<i>Cardamine latifolia pratensis fl.-pl.</i>	<i>Myosotis palustris</i>	<i>longifolia</i>
<i>Cheiranthus alpinus Marshalli</i>	<i>Orobanchia Gmelini</i>	<i>Mawiana</i>
<i>Coronilla minima</i>	<i>Jerdoniae</i>	<i>Wallacei, &c.</i>
<i>Cytisus Arduini purpureus, &c.</i>	<i>Pæonia tenuifolia</i>	<i>Sedums (various)</i>
<i>Daphne Genkwa, &c.</i>	<i>Papaver alpinum</i>	<i>Symphylum bohemicum</i>
<i>Dodecatheon elegans</i>	<i>Pentstemon nitidus</i>	<i>Trollius europæus, &c.</i>
<i>Mentha</i>	<i>secundiflorus</i>	<i>Veronica Alpinus</i>
<i>Dryas Drummondii octopetala minor</i>	<i>Phlox frondosa</i>	<i>austriaca</i>
	<i>Nelsoni</i>	<i>Guthrieana</i>
	<i>subulata</i>	<i>pectinata</i>
	<i>setacea</i>	<i>rupestris</i>
	<i>s. atro-purpurea</i>	<i>saxatilis</i>
	<i>verna</i>	<i>Grievii</i>

M.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Terrestrial Orchids.—These, I think, of all kinds should be grown in duplicate collections, each series being rested alternate years by having the flowers pinched out. I examined many dozens of roots of flowering and non-flowering plants of *O. pyramidalis* last week, and, other things being equal, invariably found that the non-flowerers had made the finest new bulbs for flowering next year.—B.

Brodiaea volubilis.—In THE GARDEN of last week (p. 80) this plant is said to be flowering at Kew and at Ipswich, but is described as diminutive in bulk and height. This is not a necessary condition. I have had one flowering in my garden for the last month. The bulb was in the same bed with *Aquilegia chrysantha*, the latter a bushy plant 4 ft. or 5 ft. high. The *Brodiaea* had been neglected and overlooked until, after finding its way to the *Aquilegia* support, it was seen overtopping the stake by nearly 1 ft. It has shown no leaves, but the stem, irrespective of coils, is upwards of 6 ft. in length and the thickness of an ordinary goose quill. I find the stem is now separate from the bulb, having died away from the root upwards; but the flowers are as fresh as ever, supported by about 18 in. of stem, which remain perfectly sound, and apparently there is a prospect that the seeds may ripen.—T. H. A. H., South Devon.

Veronica Traversi.—This highly ornamental shrubby Speedwell is now in full beauty. It is about eight years old, and forms a bush 4 ft. in diameter, and about 2 ft. in height, now completely covered with pure white flowers. It withstood the winter of 1878-9 in one of the northern suburbs of London without the slightest protection, and never lost a leaf. It is a hardy evergreen shrub of close symmetrical habit, and is well adapted for the front of a choice shrubby border, or as a single specimen on Grass. Its leaves, which are arranged in a decussate manner, are of a beautiful deep green colour, and are about the same size, or a little larger, than those of the common Box. The flowers are borne in great profusion upon terminal racemes, and being light and feathery, are well adapted for cutting. A small cluster of these, with a flower of the double Geum and a spray of *Thalictrum*, would be useful where material for button-holes or very small vases is in demand. This plant is one of the easiest possible cultivation, striking freely from cuttings, and not at all fastidious as to soil and situation. I have known it for years, but always had a doubt as to its hardiness. The past winter has, however, definitely settled this matter.—B.

Begonias at the Stanstead Nurseries.—The rapid progress that has been made with regard to the improvement of tuberous-rooted Begonias is admirably shown in Messrs. J. Laing & Co.'s collection, which is now in perfection. Not only does it comprise most of the varieties of merit that have emanated from Continental and English raisers, but also a large number of kinds the result of skilful hybridising and judicious selection practised here during the last few years. A variety of methods of growing them is also well exemplified, especially that of placing them in hanging baskets, or on pedestals, &c., for which some are admirably adapted, as their long, pendulous branches have a very graceful appearance. Large breadths in open quarters are devoted to these plants, and though the present season has not been so favourable for them as previous years, still they are very effective grown as outdoor decorative plants. Although the present season's novelties are very beautiful, and in most cases show a marked advance on the older kinds, yet there are many of the latter still unsurpassed as regards size, colour, and form of flowers. Of these, *Cleopatra*, *Massange de Louvrex*, *Baronne Hruby*, *Admiration*, *J. H. Laing*, *Marquis de Salisbury*, *Trophy*, are good kinds. The new double-flowered sorts are numerous, and include some strikingly novel colours. *Comtesse H. de Choiseul*, one of these, has received several first-class certificates during the present season. The flowers are about the size and form of those of the better known *Gloire de Nancy*, but are of a pale rosy hue, changing to a deeper shade as they become more expanded. *Clovis* is another handsome form, the petals of which are imbricated, and considerably fringed at the edges—quite unlike the other kinds and very attractive. Similar to this is *Marie Bouchet*, but it has flowers of a deeper tint. *Pæonæflora*, *Clément de la Haye*, *M. Keteleer*, *Phosphorescent*, and *Comte de Flandre*, are very distinct kinds, vigorous in habit, and free flowering. The pure white-flowered variety, *Reine Blanche*, ought not to be omitted, as it is the finest of this colour yet raised, and the same remark applies to a new white double-flowered seedling which has not yet been named, and which, no doubt, will show its character more fully as it becomes more advanced.—W. G.

Common Baneberry (*Actæa spicata*).—Although the flowers of this are by no means showy, it is, nevertheless, a very desirable border plant, and one which, on account of its clusters of

deep red berries which stand well above the finely-cut foliage, is at this season very attractive. There are also white and black berried varieties, but neither is so good as the red kind. A group of these interesting subjects at their best may now be seen in Mr. Ware's nursery at Tottenham.

Atkinson's Hybrid Pink (*Dianthus Atkinsoni*).—This hardy perennial Pink is the most brilliant of all the hybrid Dianthus. It grows about 1½ ft. high, and produces a profusion of flowers of 1½ in. across, of an intense crimson colour, the margin of the petals being sharply toothed. A fine specimen of it is now in full beauty in Mr. Parker's nursery at Tooting; it measures 2 ft. across, and the mass of blossoms produced by it is quite dazzling to look upon.

Great Dark-winged Orchis (*O. purpurea*).—Most of our native Orchises are very pretty, and this particularly so. It grows about 1 ft. high, and has broad root leaves from 3 in. to 6 in. long, bright green and spotless. The upper part of the flower-spike has a dark appearance on account of the numerous deep purple bracts with which it is furnished; from the axils of these spring the densely-arranged flowers, which are larger than those of most of the other kinds. Their ground colour varies from nearly white to a rosy-lilac, the lip being of a rosy hue, copiously ornamented with raised deep



Orchis purpurea.

purple spots. As an indigenous plant it is somewhat rare; it is chiefly found in Kent, where it inhabits copses and open woods in chalky soil. For cultural directions and list of other hardy Orchids see page 565, vol. xiii., of THE GARDEN.

National Water Supply.—As a step towards the establishment of a national water supply museum it has been decided to hold an exhibition at the Alexandra Palace during the next few months. This exhibition will be arranged in the following sections:—(1) The physics and chemistry of water; (2) rainfall (including tables of periodical averages); (3) catchment basins, with apparatus for studying percolation and evaporation, current meters, &c.; (4) geology and hydro-geology (including well-measuring apparatus); (5) water-works and filter beds, well-sinking and boring apparatus; (6) distribution of water—pipes, taps, and household appliances, waste preventers, &c.; (7) water examination—chemical analysis, microscopic examination, and examination of clearness; (8) filtration—cistern, table, and pocket filters; (9) hardness in connection with washing, cooking, brewing, and tea and coffee making; soaps in connection with washing; and methods for testing and lessening hardness; (10) water in connection with the spread and origination of disease; (11) antiquarian illustrations; (12) statistical tables; (13) pollution and its prevention; (14) literature; (15) artificially aerated waters and cooling appliances.

MR. KNOWLES, late gardener to Lord Belmore at Castle Coole, has been appointed gardener to G. H. Morrell, Esq., Headington Hill Hall, Oxford.

THE KITCHEN GARDEN.

HISTORY OF THE CUCUMBER.

By H. G. GLASSPOOLE.

THE Cucumber is known to have been cultivated for more than three thousand years. In ancient Egypt it was extensively grown, and is so at the present day; the succulent nature of the plant enabling it to resist the drought of the sandy plains, while it flourishes well in the richer soils watered by the Nile. The want of this vegetable was one of the grievances complained of to Moses by the Israelites in the wilderness; we also find it mentioned in other parts of Scripture. The Cucumber is mentioned in a particular manner by some of the early Greek writers on plants. Theophrastus, writing on the Cucumber, enumerates three varieties—the Boeotian, Scytalic, and Laconian; the last, he states, thrives better with watering than the others. We are told that the farmers of those days considered that if their seed was steeped in the juice from the root of the Cucumber it would be protected from the ravages of insects.

Cucumbers grown in the neighbourhood of Antioch were considered by the ancient Greeks the finest. Columella, one of the oldest Roman writers on agriculture, gives directions to his countrymen for forcing this plant by artificial means. Those who wish to have them early, he says, should plant the seed in well-manured earth, put into Osier baskets, that they may be carried out of the house and planted in warm situations when the weather permits. The baskets may be put upon wheels so that they may be brought in and out with less labour, and as soon as the season advances the baskets may be sunk in the earth. Pliny states that in Italy the Cucumbers are small, but in some countries are remarkably large. Those from Africa are most prolific. He mentions that by nature the Cucumber has a wonderful hatred of oil, but has a great affection for water. Of this fact, he says, we may be satisfactorily convinced in a single night, for if a vessel filled with water be placed four fingers distant from a Cucumber it will have descended into it by the following morning—but if the same is done with oil it will assume the curved form of a hook by the next day. This same author tells us that the Emperor Tiberius was so fond of Cucumbers, and took such pleasure and delight in them, that they were served up at his table every day all the year round. The beds and gardens wherein they grew were made upon frames so as to be removed every way with wheels, and in winter during the cold frosty days they would be drawn into certain high-covered buildings exposed to the sun, which was admitted through frames or lights covered with lapis specularis, probably talc or some transparent mineral, which the Romans knew well how to split into thin laminae, so that light might be transmitted through it. This appears to be the earliest account of forcing plants which we read of in ancient times.

The Romans, from the remains of their villas found in this country, appear to have been acquainted with the art of heating their rooms with flues and hot water, and from this we are led to believe that Cucumbers and other vegetables were extensively forced during the days of Roman splendour. Pliny mentions that a new variety of this plant had accidentally been produced in his time in Campania, the fruit of which was of the form of a Quince; it did not grow hanging, but assumed its round shape as it lay on the ground; the seeds from this produced similar plants. The name given to this variety was *Melopepo* (Fée says that this is the Melon, the *Cucumis Melo* of Linnaeus). Pliny appears to have considered this vegetable unwholesome in an uncooked state, but when boiled and served up with oil, vinegar, and honey, it makes a delicate salad; he also recommends a pinch of the seed beaten up with cummin and taken with wine as a good remedy for a cough.

We have no precise date when the Cucumber was first cultivated in England. It may have been introduced with other fruits and vegetables at the time when the Romans were masters of this country. According to a note in Gough's "British Topography," vol. i. p. 134, it was, with the Melon, commonly cultivated in the reign of Edward III. (1327), but in consequence of the wars between the Houses of York and Lancaster the cultivation of Cucumbers, like other plants, became neglected, and at last entirely lost. It was re-introduced at the latter part of the reign of Henry VIII.

Our old friend Gerard mentions them thus in his Herbal (1596): "There be divers sorts of Cucumbers, some great, others lesser, some of the garden, some wild, some of one fashion and some of another. There be also certain long Cucumbers which were first made (as it is said) by art and manuring, which Nature afterwards did preserve, for at first when the fruit was very little it is put into some hollow cane, or other thing made for the purpose, in which the Cucumber groweth very long by reason of that narrow hollowness, which being filled up, the Cucumber increased in length. The seed of this kind being sown bringeth forth not such as were before, but such as art has

framed, which of their own growth are found long and oftentimes very crookedly turned, and therefore they have been called Anguine, or long Cucumber." This old author also gives the earliest direction in this country for making hot-beds for Cucumbers. He directs that they should be covered with mats over hoops, as glasses were not known at that time.

Lord Bacon, who wrote about 1598, says Cucumbers "will prove more tender and dainty if their seeds be steeped in milk. The cause may be for that the seeds, being mollified in milk, will be too weak to draw the grosser juices of the earth, but only the finer." He adds, "Cucumbers will be less watery if the pit where you set them be filled half way with chaff or small sticks, and then pour earth upon them; for Cucumbers, as it seemeth, do exceedingly affect moisture, and over-drinketh themselves, which this chaff or chips forbideth." He also states that in his day "it was the practice to cut off the stalks of Cucumbers immediately after bearing, close by the earth, and then to cast a quantity of earth upon the plant that remaineth, and they would bear fruit the next year, long before the ordinary time. The cause may be for that the sap goeth down sooner and is not spent in the stalk or leaf, which remaineth after the fruit; where note, that the dying in winter of the roots of plants that are annual, seemeth to be partly caused by the over-expense of the sap into stalks and leaves, which being prevented, they will superannuate, if they stand warm."

Parkinson, in his "Paradisus," 1656, tells us that "in many countries they do eat Cucumbers as we do Apples and Pears, paring and giving slices of them as we would to our friends of some dainty Apple or Pear." The Cucumber was not generally cultivated till almost the middle of the seventeenth century, and it is stated that the first successful forcer of this plant in England was Thomas Fowler, gardener to Sir Nicholas Gould, of Stoke Newington, who presented a brace of well grown fruit to King George I. on New Year's Day, 1721; the seeds from which they were raised were sown on the 25th of September. Some years ago the Cucumber was cultivated in large quantities in the outskirts of London, and it is stated in Dr. Wynter's "Curiosities of Civilisation" (p. 229) that 14 acres might be seen under hand-glasses in a single domain, and that it has been known that 200,000 gherkins have been cut in a morning for the pickle merchants. It is also stated that Cucumbers have refused to grow well around London ever since the outbreak of the Potato disease. In London's time large quantities were grown in the fields of Hertfordshire, without the aid of glass, for the London markets during the summer months. The village of Sandy in Bedfordshire has been known to furnish 10,000 bushels of Gherkins in one week for pickling purposes. The Cucumber, notwithstanding its extensive use among all classes in this country, is considered unwholesome by most medical practitioners. Dr. Doran, in his "Table Traits," mentions that in the days of Evelyn (1699) the Cucumber was looked upon as only one remove from poison, and adds that it had better be eaten and enjoyed with that opinion in memory. Abernethy also gave a quaint receipt for its use, which was to peel the Cucumber, slice it, pepper it, put vinegar to it, then throw it out of the window. The extent to which the Cucumber is consumed not only by the inhabitants of Egypt and the south-west of Asia, but also in European Russia and Germany, would scarcely seem credible in this country. A correspondent of the *Daily News*, in the summer of 1874, returning from the fair of Nijni Novgorod, was struck with the profusion of water Melons and Cucumbers everywhere offered for sale. Pyramids of Melons and water Melons, like cannon balls in an arsenal, were heaped up in every direction, and as for Cucumbers, you could not help fancying that a plague of them like locusts had descended upon the earth. You never see a Russian peasant at dinner but you see the lump of black bread and a Cucumber. The Cucumber seems certainly a singular dish to be so national in a country with a climate like Russia. It is the last that one would have selected a priori for the post; but this is only one of the great many singularities one meets with. The Cucumber costs about the thirtieth part of a penny about the Volga; perhaps this fact will explain the anomaly. Some writer says there used to be a great annual fair at Leipzig for Cucumbers, when the streets were heaped up a story high with that precious element of German cookery. In Germany barrels of half and also full grown Cucumbers are preserved from one year to the other by immersion in deep wells, where the uniform temperature and exclusion from air seem to be the preserving agents.

Nothing can be more agreeable to our olfactory nerves on a hot summer's day than the refreshing and cooling scent of a fresh-sliced Cucumber, but perhaps it is not generally known that in the art of perfuming it finds its way to the toilet table under the form of cold cream and milk of Cucumbers. The large seeds of this tribe are employed instead of almonds in making cheap sugar-plums. Tartary has been assigned as the native country of Cucumbers but upon what authority is equally questionable with that of the Melon. No modern traveller appears to have found it wild.—*Science Gossip*.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Early Cauliflowers.—We are now cutting Dean's Early Snow-ball Cauliflower sown last spring, beating the Early London and other Cauliflowers which have stood all the winter. The last promise to be good, but they will not be in general cutting for another fortnight. J. M., *Cumber*.

Mushroom Culture in Cellars.—This mode of growing Mushrooms in cellars is very successfully pursued by Mr. Hudson at Gunnersbury House, in the cave-like recesses of an unused cellar, and without the slightest heat except that derived from the stable manure used in forming the beds. In this way large quantities of excellent mushrooms may be obtained throughout the greater part of the year, and it is moreover a profitable mode of utilising such places which often exist in connection with old mansions.—G.

Guano in Wet Seasons.—The effects of guano as a manure on growing crops are most apparent in a season like the present. The ground is now in such a wet state that it almost prohibits one from using liquid manure, and therefore the value of guano becomes most fully felt, seeing that where manure is required one can strew a little of it from time to time over the ground, into which it is washed almost immediately. I have on a cold border some rows of Peas, which some time ago looked sickly, but after giving them some guano in a few days I could see an improvement in them; the same thing happened with Onions and other vegetables. It seems to give a warmth to the soil, which is of great importance this sunless season. Where good guano can be obtained it will hold its own against any kind of artificial manures, plentiful though they be in our markets.—J. C. F.

ANSWERS TO CORRESPONDENTS.

Fruitless Peach and Nectarine Trees.—About three years ago I had my garden wall, which was very old and dilapidated, faced with Portland cement and then wired for my fruit trees. I also use copings during hard frosty weather. The aspect is south. For the last three seasons I have had no fruit, and this year the Peach, Nectarine, and other trees are most shabby. Is there any cause for this except the weather? Are the wires bad for fruit trees? and is it also a mistake to have faced the old wall as I have done? if so, is there any remedy? I should be very thankful for advice.—R. F. C. [Neither cement-faced nor wired walls are injurious. Were the trees injured during these operations, either by trampling the roots, bruising the bark, or allowing cement to get mixed with the soil? If not, then the main cause of their present condition is the bad seasons, three of which we have now had consecutively. The late long-protracted cold and wet have severely crippled many trees that were formerly healthy, hence no wonder that weakly trees have succumbed. I would recommend that the drainage of the border be made effective; next, that all inert surface soil be cleared off and replaced with good fresh loam, and if this be done, and the trees be kept free from aphides, which generally attack them in the earlier stages of growth, and the shoots be kept thin, so as to derive the full benefit of sun and exposure in getting properly matured, then—bad seasons excepted—they must grow and fruit well.—W. W. H.]

—The bad weather is the cause of the unsatisfactory condition of "R. F. C.'s" trees, and not the Portland cement or wire trellis, neither of which, I am convinced, from the lengthened experience I have had with both, are the least to blame for the mischief. We have a wall covered or faced just in the way in which "R. F. C." appears to have had his done, and when the seasons are at all favourable we always get as fine fruit there and as plentiful as we do elsewhere, the only difference being that it is a trifle later in ripening, through the white colour of the cement not absorbing, or attracting, quite so much heat as red brick. There is one important matter in connection with wired walls, and that is, the trellis should be kept close, so as to prevent all draughts behind, as it is these cold currents of air that affect and retard the healthy progress of the trees. The only instance I ever saw in which the wire injured the wood was when it had been tied too tightly, thereby causing great pressure on the bark, and this brings on gumming or canker, which soon spreads and kills the young shoots affected. The only way to preserve Peaches and Nectarines in health, whether on walls or trellises, is to keep them perfectly clean, and afford them proper protection from the inclemency of the weather early in spring. Trees are nowhere looking well this season, as they not only got injured by frost, but they have been paralysed with cold and wet ever since, and it is hardly to be expected that they will have time now to complete their growth and properly ripen their wood.—S. D.

Buckland Sweetwater.—Could you give me some advice as to the treatment of a Vine which we have? It was planted four or five years ago, and the sort is Buckland Sweetwater. In the same house there was planted at the same time a Black Hamburgh which has always done well, and last year carried and finished well sixteen bunches. Now to my surprise the Sweetwater has never even showed fruit; it makes a fair amount of wood, which always gets well ripened. I have seen somewhere that this Grape is considered to be a shy bearer; it certainly has proved so with me. Now what is the best course to adopt? could it be inarched with a vine known to be fruitful? A friend of mine has one which is particularly so, and although he has seen mine the only answer I get from him and others is, they see no reason why it should not fruit. Hence my appeal.—A PERPLEXED ONE. [The Buckland Sweetwater is one of the very few varieties of Grape Vines that bear best as it gets old, so do not get impatient, it will yet serve you well; but meanwhile do not prune too closely, cut back to the plumpest eyes only, and these will be certain to produce "shows." Of course by this system of pruning ugly spurs are created, but what of that if fruit be obtained? Besides, it is a very easy matter to run up a new rod occasionally to replace these.—W. W.]

Window Flowers for Winter. We are afraid that the list of plants suitable for the purpose named by "Rose" (p. 94) is a somewhat restricted one. It is difficult to have much flower in winter without the aid of heat. Hardy succulent plants such as many of the Cactus tribe, *Echeveria secunda* and

secunda glauca, *Sempervivums*, *Roechea fulcata*, *Aloe variegata*, &c., make good plants for windows in winter; so do *Aralia Sieboldii* and many dwarf evergreens. Cuttings of zonal *Pelargoniums* taken now would grow into size by autumn, and probably flower if the weather was sunny and warm; but warmth is necessary to expand their flowers. Such varieties as *Vesuvius*, *Madame Vaucher*, *Christine*, &c., are suitable for the purpose. Some late-rooted cuttings of *Chrysanthemums*, seedling plants of *Primula sinensis*, and *Cinerarias* would do. Alpine *Auriculas*, *Polyanthuses*, and *Primroses* would be very useful for spring; but it is too late to sow seed now, and get the plants into a flowering size by spring. Of common seeds sow a little *Candytuft*, *Nemophila*, *Limnanthes*, *Silene pendula*, *Sweet Alyssum*, *Eschscholtzia*, &c. The variegated American *Cress*, *Daisies*, dwarf *Sedums*, and *Ivies* ought also to be tried. Zonal *Pelargoniums* during winter require to be kept warm and moderately dry. All window plants are greatly helped if the leaves be sponged over occasionally.—R. D.

Diseased Peaches.—What is the matter with the Peaches which I have sent? They have been planted in an inside border four years, and have always done remarkably well until this season. The disease first began in one tree; the first sign was a brown speck, then the bit came out of the leaf and left a hole; it began at the bottom of the tree and went upwards, and from one tree to another. Some of the fruit became as if pricked with a pin, and a kind of gum oozed out. The trees have until recently been quite free from red spider; but, owing to trying drier treatment, I see there is a little on them now. The leaves come off as badly as in autumn. There is a good crop of fruit, but I think it would be better taken off, so as to save the trees. I have examined the roots, and they seem quite healthy.—A. G. [Your failure is attributable to a sour and stagnant state of the border. We had the self-same disease in a late house four years ago, and cured it by lifting the whole of the trees, and making an entirely new border; since then, though the same trees were replanted, there has not been the slightest indication of disease. I would recommend the adoption of the same remedy in your case, making free use of drainage and of lime scraps and charcoal in the soil. If the operation be done carefully early in October, the trees will fruit next season, as well as if they had never been moved.—W. W.]

Gooseberry Caterpillars.—How am I to get rid of these? My Gooseberry bushes are quite ruined by them.—CONSTANT READER. [There are various ways of getting rid of these caterpillars, the most effectual at this season being that of dusting them over with Hellebore powder; which being of a poisonous character should be well washed off by the garden engine before using the fruit. Prevention, however, is better than cure; and a good dressing of lime, forked in or scattered over the ground in autumn or winter, prevents the grubs from hatching; and if used with soot or manure as a mixture, it is of great benefit to the land. I used to be much troubled with caterpillars, but since I have adopted the above-named remedy, I have not seen one in the garden. A smart shake of the bush will bring numbers down, when they may be killed on the ground by the back of a spade; and those left on the leaves picked off by hand. Anyhow, they should be exterminated at once by one or other of the means mentioned, so as to get rid of further increase.—J. S.]

Early Beatrice Peach.—I should be much obliged if some of your subscribers will give their personal experience of this Peach; mine is that, though about five weeks earlier than the best mid-season Peaches, it is quite worthless. Rivers's Early York seems also a very inferior Peach. Dr. Hogg, three weeks earlier than the above, is of very fair size, good colour, and of excellent flavour.—A SUBSCRIBER. [In what respect is it worthless? my experience is that, though small, it is a finely flavoured Peach, a most profuse bearer, and the earliest variety known. I prefer Early Louise because it is larger, equal in flavour, and only a few days later in ripening. The faults of both are that they are so tender in the skin, they will not travel well, and are therefore not suited for those who have to send their fruit any distance away. Early Rivers is better than either of the above, being larger in size, firmer in texture, and exquisite in flavour, but it is a week later in ripening than Early Louise.—W. W.]

Imported Orchids.—Some time since I bought several lots of Orchids as imported, principally *Celogynes* and *Cymbidiums*. These are now making young growths, but do not seem to be pushing roots. Should they be potted when the shoots begin to grow, or should I wait until new roots show themselves? To any experienced Orchid grower who will answer this question I shall feel deeply indebted.—W. B. [Pot them at once, as in both cases roots proceed from the base of the young shoots, and it is very important that these young roots should have something to run into immediately they come forth. Allowing imported *Celogynes* and *Cymbidiums* to be about is a mistake; they should be potted immediately it is possible to distinguish dead portions from those that are alive.—J. C. SEYERS.]

Transplanting Bracken.—I have a piece of woodland, into which I want to introduce Bracken. The soil is healthy peat, subsoil sandy. What is my best mode of procedure?—G. S. [Carefully dig up some of the black underground creeping roots and replant them thickly at about 3 in. deep. In digging the roots up care should be taken to select only those which have a green bud at the tip, as without it the roots will not sprout. The best season in which to carry out the operation is March or April.—G.]

Water Lilies.—How am I to plant Water Lilies in a running stream? and what sorts would you recommend me to plant, and when?—P. B. [Water Lilies or any kind of deep water plants may be planted in baskets in sufficient soil, and weighted at the bottom with stones. There are no better kinds than the common native Water Lily (*Nymphaea alba*), and its varieties, especially the Rose-coloured kind. The North American sort (*N. odorata*) is also a desirable kind. Though not so hardy as the common Water Lily, it has the advantage of its blossoms being sweet-scented. There are several other kinds, but as they are somewhat scarce and closely resemble those mentioned, it is not necessary to enumerate them.]

Woodlice (p. 94).—Woodlice seek dry shelter, and may be readily entrapped by laying flower-pots on their sides, containing a wisp of hay or straw and some pieces of boiled potato as a bait. Every morning they should be emptied out and destroyed, either by throwing them into hot water, or casting them to fowls, which are very fond of them. Toads, too, are capital aids in freeing hothouses from these pests, but they cannot be expected to effect a quick clearance. Being much like Beetles in their habits, I should think they would take the same vermin powder, at any rate it is worth trying, and if they should devour it, that would get rid of them at once.—S. D.

Heating (p. 94).—The cheapest and, according to my opinion, the best mode of heating is to use the large, square, or other shaped rain-water gutters that may be had at a low cost and quickly jointed together by screws and red and white lead. All that is necessary is to build up 4½ in. piers to support them at the joints, so as to keep them firm and immovable. By using these there is no occasion to have a tank, or go to any expense whatever, besides which there is no loss of heat, as these gutters, being up clear above everything, give it off from

every part, and being open at the top, there is no lack of moisture. The only thing with these is that, of course, the pipes connected with the same boiler must be kept on the level of the gutters or rather not above them, as if they were higher the water would run out. To form a covering above on which to place the soil or whatever is used for a bed to grow or plunge the plants in, slate is the most permanent, and answers the purpose best, as it is not only imperishable but is strong and a good conductor of heat. Boards or planks are the reverse of this, and require continual renewal, the warmth and moisture being very destructive to wood when placed in such a position. In making the floor of the bed the slates should be so laid as to prevent steam getting through between the joints, as this is injurious to the roots; at least, it so soddens the soil as to render it unwholesome for them to feed on it. Cucumbers sometimes find their way into the water in tanks, but they like more wet than Melons or most other plants.—S. D.

Lilies and Rabbits.—"J. M." (p. 72) asks for a safeguard against rabbits. Let him try a piece of tarred rope (tied to the top of the stake to which the Lilies are fastened). Let the ends of the rope hang loosely to the ground. I have found this a safeguard against hares and rabbits in the case of all kinds of young fruit trees, and it may answer equally well as a protection to Lilies.—J. H. A. H.

Begonias.—T. H. H.—The flowers of Begonias sent, though good, are not superior to other varieties in cultivation. The double white Snowflake is not full enough to be termed a good double, but the pure white single form is beautiful and quite worth perpetuating.

Grapes.—G. H. G.—We see no mildew; it is merely a case of scalding.

Names of Plants.—F. T.—*Pinus excelsa*. G. W.—1, *Erigeron macranthum*; 2, *Veronica longifolia alba*; 3, *Eriothera biennis*; 4, *Iris xiphoides*. *Bourne-worth*.—*Scilla peruviana*. C. B. K.—3, *Browallia Jamesoni* (yellow flower); 4, *Escallonia florida*; 5, *Leucotheca salicifolia*. W.—1, *Crucianella stylosa*; 2, *Viola lutea*; 3, *Campanula rotundifolia*; 4, *Dianthus Carthusianorum*. G. P.—They all belong to the Noisette group, except the pink, which belongs to the Damask section; but there is not sufficient material to name accurately. H. K.—1, *Lythrum Salicaria*; 2, *Gillenia trifoliata*; 3, *Lavatera trimestris*. C.—All seedling forms of *Larkspurs*, but we cannot undertake to name them. D. R.—1, *Melastomum Munroanum*; 2, *Calceolae pedata*; 3, *Hypericum empetrifolium*. A. B.—1, *Anemone rivularis*; 2, probably *Crambe palmarifolia*. N. E. L.—Next week. E. R.—Varieties of *Iris levigata* (I. Kempter) S. J.—Apparently *Hydrophyllum virginicum*, but cannot name from such a scrap. *North Devon*.—1, *Eriothera frutescens*; 2, *Delphinium Ajacis*; 3, *Thalictrum rugosum*. N. E.—1, a species of *Oncidium*; 2, *Odontoglossum hastialatum*; 3, *Rivina humilis*; 4, the common Canadian Water Weed (*Elodea canadensis*). *Essex*.—1, *Hemerocallis fulva*; 2, *Eriothera Youngii*; 3, *Veronica longifolia*; 4, *Veronica longifolia rosea*; 5, *Bletia hyacinthina*; 6, *Catananche cœrulea*.

Question.

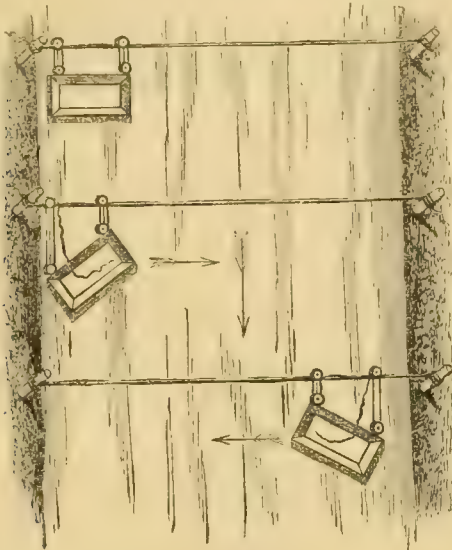
Melons Splitting.—In a two-light Melon frame I have at the present time a plant of *Scarlet Gem* and *Lord Beaconsfield* respectively under each light. The fruit on *Lord Beaconsfield* is in a satisfactory state and approaching maturity, while the fruit on *Scarlet Gem* (of which there were four) is split, not from the stalk, but across, showing the pips. The fruit is quite hard. I gathered one two days ago, and then cut it, but it was not sufficiently ripe to eat, although it had become much softer, and this morning I found another fruit split into segments, presenting the appearance of a very full-blown Tulip. Is it of any use allowing the other two fruits to remain on the plant? or should I cut them and start the plant again? Both plants have been treated alike.

Horticultural Implements.—In the remarks (p. 87) alluding to the heavy clumsy wheelbarrows in general use in private gardens, it is seemingly inferred that there is not a lighter and equally efficient barrow made; but that is a mistake, inasmuch as there are several kinds in existence which obviate the objection complained of, and notably the Tubular Wheelbarrows, invented by Mr. Peirce, of Oxford Street. These are larger and quite one-half lighter than the ordinary wooden barrow. They are made of wrought iron with a shallow, roomy body, the frames consisting of tubular wrought iron, and the handles of the same material, convenient to the hands, and fitted with wrought iron wheels; or if the noise caused by these is objectionable, wheels constructed of wood can be fitted to them. To prevent rust the entire barrow is galvanised, which avoids the necessity of a continuous application of paint. Another noteworthy point is that the wheel is placed more under the body of the barrow than is usually the case, thereby considerably lessening the weight of the load on the hands of the workman. Similar kinds of barrows fitted with solid iron frames and wooden handles are also made, but these are heavier. With regard to garden ladders I must say those in general use are anything but light and convenient. Quite as efficient ladders as those seen in French gardens are, however, made, though they are not sufficiently known. These are also made and supplied by the firm just named; they consist of tubular wrought iron in 6 ft. and 12 ft. lengths, which fit together in a telescopic manner. They are considerably lighter and stronger than those made of wood, as a ladder 12 ft. long weighs about 16 lb. A modification of this is the convertible step ladders, which are fitted with joints, and so arranged that they may be used as an ordinary 6-ft. pair of steps, and are very convenient. In Peirce's Pole Ladders one side fits into the other, making them much more portable than the ordinary form.—W. G.

Wheelbarrows.—These as made in Middlesex generally partake of an awkward box character, the entire side and handle being made out of a single slab; the handles are deep and narrow, and most uncomfortable in the hands of a workman during the whole day. These barrows are not enduring but collapse rapidly when one part gets loose or decayed. I have a barrow of an upright oblong shape made eight years ago that has done a great deal of work, and that will yet do much more. It is made of Ash with round comfortable handles, and has a 2 in. wide iron wheel. With care such a barrow will last many years, and it is light and pleasant to use.—A. D.

SELF-ACTING FERRY BOAT.

We copy the following sketch of a self-propelling ferry boat from the "American Agriculturist," thinking it may interest some of our readers. It is used in crossing streams in which there is a strong current. The boat is a common flat-bottomed "scow," but it would be more effective with a side-board to be let down the same as the centre-board of a sailing boat. The boat is attached to the guide rope, stretched across the stream, by pulleys and tackles, as represented in the engraving. When the boat is parallel with the guide rope it is stationary; when one of the tackles is let out the boat takes a diagonal position, and, the current striking the side of it, pushes it



Self-acting Ferry Boat.

across the stream. By having long ends to the tackle, which can be fastened to the posts on the banks of the stream, the tackle may be drawn up, even when the boat is on the opposite side of the stream, and be brought over for use without much labour.

LOXFORD HALL.

THE garden at Loxford is one of those which, though somewhat devoid of natural features and elaborate design, has been rendered interesting by means of the cultural skill that has been bestowed on its contents, from those in the shrubby border to the occupants of the plant and fruit houses. Comparatively small quantities and great variety is the style of gardening practised here, except with regard to the specialities in florists' flowers, such as Picotees, Carnations, Pinks, Auriculas, &c., with which Mr. Douglas is prominently associated. Of these there are large collections, especially of the latter, which occupy several roomy frames, and, it is needless to add, are all making vigorous growth, especially the earlier potted plants. The Picotees and Carnations were growing in convenient span-roofed houses, which are wholly devoted to them. At the time these notes were taken but few blooms were expanded, but the show of buds looked promising, and no doubt they will be in perfection by the date of the special exhibition of these charming flowers at South Kensington. Pinks in outside borders were very gay with their many-coloured blossoms varying from pure white to crimson, and the combination of both colours in the prettily laced varieties, all of which should be grown in every border, was also charming.

The conservatory was very attractive, many of the usual decorative plants being in bloom. Amongst them were fine examples, from 3 ft. to 4 ft. across, of the showy *Kalosanthes coccinea*, forming huge masses of brilliant colour. Seldom is this fine plant met with grown to such perfection, though, on account of its simple culture and adaptability for decorative purposes, it is unsurpassed amongst summer-flowering greenhouse plants. It is very variable in colour; in some the flowers are pale pink, in others deep crimson, with every intermediate shade. Large thriving specimens of *Lapageria* drape the roof and walls of this house, the rosy and white blossoms hanging in graceful profusion. Australian plants and Heaths are grown here extensively. One huge plant of *Erica Cavendishi*, several feet through, and particularly noteworthy, is maturing its growth in the open air.

As is now generally the case flowering plants in stoves and Orchid houses were not conspicuous, though in the latter the lovely *Dendrobium* (D. *McCarthyi*) was in flower; also the beautiful *D. formosum*, which thrives here remarkably well, as, indeed, do all that section of the genus with black-haired stems. Two of the finest *Oncidiums* in cultivation were also beautifully in flower, viz., *O. macranthum* var. *hastiferum*, and *O. Lanceanum*; the latter Mr. Douglas finds to succeed best under basket culture. The cool house class of Orchids were well represented, and we were pleased to note that the hardy *Cypripediums* were receiving special attention, including as they do nearly all the kinds in cultivation. The singular *Golden Satyrium* (*S. aureum*) from the Cape of Good Hope was in flower, and seems to succeed well in a cool airy house with plenty of moisture, such as that in which the gorgeous *Disa* thrives. A choice collection of Filmy Ferns is an interesting feature, and amongst them are good plants of *Todea Fraseri*, *superba*, and the elegant new *T. plumosa*, a plant which well deserves to be in every collection. *Gleichenias* are valuable decorative plants, especially the twining-stemmed kinds, such as *G. semivestita*, *microphylla*, &c., of which there are here some admirable specimens. *Adiantum Farleyense*, *amabile*, *gracillimum*, *trapeziforme*, *concinnum*, and its variety *laetum* are capital exhibition kinds, and as such they are grown here, also *Davallia Mooreana*, a Fern universally admired.

The Vineries were well stocked with good crops of fruit. One house of Muscat of Alexandria deserves especial notice; it was filled with one Vine only, which was planted outside near the back wall in an oblong border about 4 ft. by 2½ ft., and 3 ft. deep, enclosed by a wall. It is bearing about forty bunches of unusual size, both as regards bunch and berry, and so evenly matched that there is not one but would make a creditable display at an exhibition. Pine culture is practised on a moderate scale, as is also other ordinary indoor fruits.

Hawthorns on the Heights.—During the last few days I have walked from Windermere through Low Wood and Troutbeck to the top of Kirkstone Pass, and thence down by way of Ambleside. I shall probably haunt the region for some time to come, in order to enjoy the flowering of the Thorns. There are thousands of these on the roadside and on the slopes of the fells, and you can trace them to the top of the mountains, where they are stunted and deformed, and scarcely yet (July 19) in full flower. But on the lower levels they are full out, and they literally make the wilderness to blossom as the Rose. Some of them are dense masses of the purest white flowers, but very many have flowers of a soft creamy-pink, and a few are warmly tinted with a pleasing rose-pink. Between this date and the 1st of August these thousands of Thorns will be at their best as regards flowering, and when their berries begin to ripen they will make the mountains glow as with fire.

The Lady Fern.—Probably the finest display in the British Islands of the lovely *Athyrium Filix-femina* is to be seen on the route from Troutbeck to Kirkstone, where occur the thousands of Thorns referred to above. The botany of this region is peculiarly interesting, but the Lady Ferns dominate in the undergrowth and constitute a very powerful feature. They extend as it were in grooves or avenues for miles, and generally speaking the growth is superb. I measured one frond and found it over 40 in. in length. The soil in which the finest tufts are found is scarcely more than moderately damp at any time; on the other hand it is never dry, for the frequent fine flowers peculiar to the district keep the vegetation bathed in moisture. The Lady Fern is often planted in wet soil, but we never so find it in the places where it attains its greatest luxuriance.

Rhododendrons in August.—Any of your beloved compatriots of the great metropolis who in the month of June missed seeing the Rhododendrons in bloom, and are now pining under the pressure of regrets, may recover their cheerfulness by tripping to the lake district, where in the warmer parts Rhododendrons were not fairly in flower until the middle of July, and in the colder places will be just about right in the first week of August. On the 26th of July I saw some very fresh and flowery clumps in that glorious valley at Millbeck, which makes a world of its own under the dark shadows of the Langdale Pikes. All Rydal and Grasmere way, all Patterdale and Pooley way, and all Mardale and Hawes Water way, there will be splendid displays of Rhododendrons up to the middle of August, but by that time they will be quite over Windermere and Conistown way. Nine-tenths of all the Rhododendrons in these districts consist of *R. ponticum* of a somewhat common type, but they grow so freely and flower so grandly that one scarcely desires anything better. But, as a matter of course, the gardens that show us valuable coniferous trees and highly-kept lawns and parterres, can also show us hybrid Rhododendrons of the finest pattern; and the man who would gladly go mad upon the subject should pitch his tent near one of the lakes, and then proceed to play the prodigal son in riotous Rhododendronism.—*Gardener's Magazine*.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

GOLDEN YEW.

SEEDLINGS AND GRAFTED PLANTS.

GOLDEN YEWs of different types are favourites for planting for ornamental purposes, their shining golden foliage producing a striking effect anywhere in conjunction with other shrubs. They are propagated by grafting in the case of named varieties, but the golden Irish and pyramidal golden Yew come true from seed as regards colour, and I think there can be no doubt that seedlings will make by far the handsomest plants, and where planted for specimens, as they frequently are in parterres, they are every way to be preferred. Grafted plants can only be kept in shape by training and clipping; but seedlings grow of the desired shape without assistance, and also look less formal. Perhaps a good deal is owing to side branches being selected for grafting, but, whether or not, it is a fact that the grafted plants which one generally sees are one-sided or mis-shapen in some way. I was particularly struck with this fact the other day in looking over a collection of some 7000 golden Yews, of all shapes and sizes, in the Handsworth Nurseries. Many of these were grafted specimens, but they could not compare with the seedlings, which varied a little in habit, but in every case formed shapely bushes, and many of them were perfect models of symmetry. The seedlings are, too, by far the best growers. Wherever such subjects are planted on open lawns the seedlings are undoubtedly to be preferred. I am acquainted with not a few pretty old grafted trees in private gardens that look at this day just as they did when planted, and that is like a bushy side-branch stuck into the ground. Such trees rarely or never make a leading shoot, but continue to push branches in a horizontal direction—making disproportionate lateral development and no top to speak of. Some grafted plants of the golden-leaved variety growing in favourable exposures here on the lawn, and planted some years ago, exhibit this tendency in a remarkable manner. They have made dwarf, squat bushes, and will never be anything else apparently. One tree measures 6 ft. across to the extremities of the branches and 18 in. in height; a second measures 11 ft. across by 2½ ft. in height; while a common Yew, propagated in the same way, measures 15 ft. across and is only 5 ft. high. For forming a hedge quickly Yews of this habit are excellent, as they naturally grow close to the ground. Probably this habit of grafted specimens results from the propagation of side or branch shoots more than from leaders, but on that point I offer no decided opinion. The great supremacy of seedlings over grafted plants is, however, worth pointing out in the case of all such habited plants.

J. S. W.

FAMOUS TREES OF HERTFORDSHIRE.

BY THE REV. CANON GEE.*

THE Beech is expressly said by Caesar not to have been found in Britain, and its Welsh name, "Fawydd," is taken to be an adaption of the Latin *Fagus*. Indeed these, our old Roman masters, are thought to have naturalised here the Chestnut, Lime, Sycamore, Box, and Laurel. But they do not lay claim to have introduced the Oak, and we may safely declare the Oak to have been English in pre-historic times. No one can doubt that it thrives well with us and takes a giant's grip of our soil. It is said that even Americans, accustomed to the giant trees of their forests, yet find an unmatched stateliness and grace in the English Oak. Our climate suits it. No one ever heard of an Oak as being affected by the severity of a winter, whatever that severity may be. We may say of the Oak that its gnarled and knotty trunk is engendered by the rigours of our Northern skies. So very long has the Oak been among us that we are scarcely aware that he seems to have had an elder half-brother; at least, that much of the oldest Oak timber in this country is not of the same kind as that now in use. What we call Oak timber now is the wood of the *Quercus pedunculata*. This has its fruit stalked and its leaves sessile. The other Oak, the *Quercus sessiliflora*, has its fruit sessile and its leaves stalked. This latter is the Oak which furnished timber to some of our oldest buildings—notably to St. Alban's Abbey and to Westminster Hall. The old wood is so far unlike our modern notion of Oak timber, particularly in the absence or indistinctiveness of the silver grain, that it was long considered to

have been Chestnut. Now, the distinction which I have just laid down seems to be recognised and to entitle this old timber to be called Oak. I may mention here that at the hospital of St. Cross, near Winchester, I myself saw Oak of a very singular, dark grain, which was commonly attributed to the way in which the wood was cut. The extreme length of each plank was only 5 ft., and it might all have been cut crossways. A natural question arises at once with regard to the Oak—viz., as to its extreme age. I mean as to the age which it would attain if left to itself, or as to the age of some patriarch of our acquaintance. I do not see how this can be ascertained except by documents, and documents will not go back as far as we desire. Granted that an Oak marks its growth by natural indications, yet when growth ceases these indications stop. I cannot tell upon what grounds the Salsy Forest Oak in Northamptonshire is so confidently pronounced to be 1500 years old. We can make no experiments for ourselves in this direction, unless we would repeat the failure of the good old lady, who, having heard that a tortoise would live 100 years, bought a young specimen, that she might judge for herself. I conclude that the only approach to investigation would be to notice carefully the growth of an Oak still growing, and to calculate in what time, proportionally, an old Oak would have attained its girth, and then allow a proportionate time for decay. Of course this growth would vary much from the influence of soil and aspect; still something may be done in this way. Our Lord-Lieutenant, a lover of trees and an observer long before I took up the subject, has given me his experience with regard to trees at Gorhambury. He summarises his conclusions as being, that an Oak increases in girth ½ in. per annum, and a Cedar 2 in. in the same time. But in the memoranda which he kindly furnished there is a difference between the Oaks of which he gave me the measurements. I do not know what experience the poet Dryden had of trees. He most likely gives us the general opinion of his own day in laying down poetically that an Oak's duration is 900 years:—

"Three centuries he grows, and three he stays,
Supreme in state, and in three more decays."

Elms.—I string together a few remarks on other trees generally. I have spoken of Elms as foreigners, but I admit that they were naturalised in the times of the Heptarchy. Like the old family of Coplestone—

"They were at hame
When the Conqueror came."

They have given Saxon names to many English villages, as Elmham, Elmwood, Elmsthorpe, Elmstone, Elmstead, and Elmsley. The Elm's failing is to become hollow at eighty years of age, and at that time its arms and roots both become brittle. It has a special beetle to itself called the Elm-beetle (*Scolytus destructor*), and its great value is for such positions as alternate wet and dry conditions, e.g., for pumps, troughs, conduits, water-wheels, and water-gates. If the Elm be originally an immigrant, it has since become an emigrant also. Perhaps it was from his own personal connection with this country that Philip II. of Spain planted the avenues of Madrid with English Elms. Learned men differ as to the origin of the name Wych Elm. There are three derivations proposed. 1. From the Saxon word *wich*, a village or town, as Sandwich, Middlewich, &c. This would make the Wych Elm to be "the village Elm." There is this much to be said in support of the idea, that the Wych Elm does ripen seed; so that it may be thought to have been the earlier or more recognised Elm. 2. From the word *wych*, meaning a box or press, such having been made originally of such wood. Our modern word *hutch* would be a corruption of this, and *wych* is applied in old writings to the ark of the testimony, as also to provision boxes in daily use. We have in old writings "wyches for cheeses." 3. From a superstitious notion that witches frequented this tree, dancing around it or dwelling under it. So far as I can distinguish the original orthography, it seems in favour of the second meaning, which would derive the word from *wych*, a chest or box.

Beech.—The Beech tree peculiarly claims the county of Bucks as its own. In Herts it has more variety in its way of growth than any other growth which I have observed. The Beech close to the Langleybury Parsonage, which seemingly has always stood out by itself, is a model of what a fully-developed tree may become. It scarcely seems to have lost a twig from the first. It was carefully protected in Mr. Whittingstall's time. The hardest thing that can be said of it is, that it is too perfect to be picturesque. An artist would choose a tree more twisted and reflected. At Ashbridge you may see the contrary form of elegance which a Beech will take when crowded in its nursery and, as the expression is, "etiolated" by too close proximity to its neighbours. Then it will run up straight as an arrow and upright as a dart. He who does not go to see the King and Queen Beeches at Ashridge does not deserve to sit under trees or biographers of trees. These royal trees, girthing only 11 ft. or 11 ft. 6 in.—the lady is the stouter—ran up, I am assured, 85 ft. before pushing a branch. If you journey thither, mind that you go

* Extracts from a paper read before the Watford Natural History School.

straight to the trunk and stand close up to the very stem. Then look at all the glory of the olive-grey, smooth, clean shaft.

Limes are known by their employment by all carvers, and notably by that prince of carvers, Grinling Gibbons, in the production of his choice works. It is said that the wood is not only smooth-grained and beautiful in its enduring colour of pale yellow or almost straw or creamy white, but that it is also insect-proof. I would inform any one who may lately have had a Lime blown down, or who, as myself, have been compelled to cut down a Lime, that it should not be sold cheap. It is worth at least 2s. a foot as it lies, and is employed to make the sounding-boards and linings of pianos, for which its little tendency to warp makes it valuable.

Ash.—Of Ash I will only say that Gilpin, having pronounced the Oak to be the Hercules of woods, calls the Ash the Venus. I myself always reserve the title of Lady of the Woods for the Birch. Gardeners, it seems, in some places time the planting out of their bedding material by the appearance of the Ash leaf, and remove it when the leaves fall. It is a peculiarly tough wood, and the stoutest oar, tool-shaft, or lance-handle is always made of Ash. But it is considered a dull tree, coming out late and going off soon, and without any bright colour on its rather thin foliage.

Chestnut, whether Horse or Spanish, should always be spelt with a "t" in the middle, in honour of its derivation from Chataigne (French) and Castanea (Latin), both of which words come from the city Castana in Pontus, whence Chestnuts first came into Europe; as Cherries came from a neighbouring town, Cerasus, now Kerasaun. I particularly admire in large Spanish Chestnut trees, as at Ashridge, the twist, as of a rifle barrel, which the bark takes, giving the effect of a spiral column, and making the tree look larger than it really is. I was surprised to find one tree that I measured to be only 14 ft. in circumference. And there is at Abbott's Langley a singular instance that the Horse Chestnut will take root with its branches and spring out again, as does the Banyan, thicker than where it touched the ground. The road having been raised formerly under the large Chestnut on the lawn of Langley House, this process may clearly be traced where the earth has been lifted up until the branches touched the soil. They have taken root and sprung up in renewed vigour. The interest of this tree is so great that it throws literally into the shade the Cedars on the lawn.

Larch, &c.—I might leave out the Larch as a member of the excluded Fir tribe, but I would like to say a few words of this tree as being a tender nurse to the Oak. In the only forest of which I know anything—the Forest of Dean—people prepare for planting, or I fear I may say sowing, Oaks by planting Larches. These spring up soon and form a screen and shelter for the more valuable seedlings. By the time that the Oak can stand alone the Larch is valuable as a pole, and is then removed, to the planter's immediate profit, thus fulfilling the saying that "Larch will buy you a horse when Oak will not buy you a saddle." Still, as Sir Walter Scott says, "Plant trees, good trees, they'll aye be creeping while ye are sleeping."

Individual Trees.—Now I am liberty to notice trees in Herts, famous either for grandeur or story. There are trees famous for their girth, implying age, and generally involving decay. Some of our most venerable friends are mere shells. There are others which stand erect in stalwart strength, and are solid and massive trees. Comparisons are odious; but I think we ought to do justice to the really vigorous and more natural trees, for the greater girth will always be found in those which have been polled or pollarded. I do not want you to look at a tree as do some of my simpler neighbours, in whose minds at once rises the consideration of what it would fetch when down. "I'd be bound to say, sir, that there are four load of timber in that tree. Why, I recollect when a water-wheel at such a mill wanted a new axle-pin, master got £50 for just such a hoak." No; I would deprecate so commercial a view of the glories of our county. I would rather ask you to look at a grand old Oak as Smeaton, the engineer of the existing Eddystone Lighthouse, studied an Oak when the third edifice had to be placed on that storm-beaten rock. Then it is said it struck him that if he could imitate the proportions of a tree which weathers every blast he might hope that his work would stand. He figured to himself a model tree with a real waist, which would encourage the waves to curl over and discharge themselves innocuously. On those lines he built, and the continuance of his erection to this day shows that his labour was not in vain. Well, we will distinguish the old knotted and gnarled patriarchs from these their worthy congeners as best we may. But applying ourselves to take only the girth of a tree we are in some indistinctness, how to measure, or how to compare measurements. At what height shall we take the girth? Shall we be bound to take it at a certain arbitrary height, though not the most favourable to the particular tree? I think not. I understand that we are to get the greatest girth that can fairly be measured, after clearing the root knobs or

earth knots. This, for our own comparison, should be taken as nearly as possible at the same height in all trees. I approve of Lord Verulam's rule of thumb. He always measures a tree at the height of his own waistcoat pocket, he standing on the best side of the tree for a ground level. Do what you will trees will not oblige you by coming into a competition upon terms of exact quality. I have found two trees of which the girth of one was the greater, but it was a hollow sinuous growth, while the less tree met the tape evenly and closely on all its sides, and on that account seemed really the finer tree.

Then, what shall we lay down as our unit of fame? What size shall make a tree famous? I distrust some of the extreme measurements that are given. I have sceptical doubts as to that tree in Hatfield Park, which, according to the *Quarterly Review*, measures 48 ft. in circumference. It is the Oak called the Lion Oak, that tree has been measured for me, and its measurement reported as 32 ft. I myself have never been able to measure more than one tree all the way round that measured more than 30 ft. in circumference. That tree was the Yew in Crowhurst Churchyard, in Sussex, not in Herts. It has a door in the side, and eight persons go in, and, squeezing tight, declare that they are able to sit round it inside. I would suggest that we take 20 ft. circumference as our starting-point, and that we make it our business to be on bowing terms with all trees in West Herts of that girth. You need not be afraid of an inconveniently large acquaintance, while you will not be overwhelmed with everybody else's favourite tree.

The largest tree that I know of, and seemingly the oldest in Herts, is the Spanish Chestnut at Little Wymondley, near Baldock. It is now the wreck of a wreck. There is not a half of its circumference standing, though a print at High Elms, of the year 1790, shows the tree as then perfect. An original girth of 42 ft. is claimed for this Chestnut, and possibly may have been attained, but if so the tree must have projected on the fallen side and would not be anything like a circle with what is left. It is still a grand old tree, and one is ready to believe that it was standing at the time of the Conquest. There is no mention of it, however, in the Domesday Book of the parish. Next to the old Chestnut at Wymondley, the largest girth that I know is of a pollard Oak in Moor Park, that measures 25 ft. and another near it measures 23 ft. There is also in this park a prostrate Lime mentioned in Johns' book as among the largest in England. It must have been a fine tree, though, like the Codicote tree, its size lay in the space that it covered, rather than in its height or girth. Close behind it, and in the avenue or row skirting the park, is another Lime in full vigour, girthing 23 ft. This is a beautiful tree. There are two Beech trees in Cassiobury Park, going to the Swiss Cottage, both of which reached my standard of fame. Lord Verulam writes me word that the Kennel Oak, at Gorgehambury, measures 23 ft. The Queen Oak measures 20 ft., and he has a Lime which measures 22 ft. He gives also as just below my standard (being 19 ft. 10½ in.) the Kess Oak, the origin of which title his lordship thinks is, that the Oak was cased or fenced. By-the-bye, do you care to know that the many Gospel Oaks in the country had their names from the fact that, in perambulating the parishes, the Gospel for Rogation Day was formerly read when the beaters of the bounds reached that particular Oak? I will state there is no tree in my list, but examples of it exist somewhere, reaching at least my unit of fame—a girth of 20 ft.

How to Estimate Height.—Now, with regard to height, you may say, "It is all very well to measure girth, but how are you going to measure height?" Who is to tell us whether a tree is 130 ft. or 140 ft. high? I can give you two rules of thumb, which will at least assist calculation. This is one. Supposing your tall friend to stand out well in the open; set by the side of him a stick of ascertained height, say of 6 ft. Watch at the proper hour the length of shadow cast, both by your 6 ft. rod and by the tree. Then calculate in proportion the height of the shadow-casters; e.g., if the tree's shadow be twelve times the length, take its height at 72 ft. Or, take three laths, join two of them at a right angle, and make each lath containing the angle to be of the same size. Then unite the equal sides with a third, subtending the angle. Now hold it level and opposite the tree. Walk away until your eye looks up the third and long side precisely to the summit of the tree. You may now consider yourself to be standing at the apex of an enlarged triangle, of which the ground line is one side and the erect tree another. You measure the ground line, and in so doing you measure the height, for it equals the perpendicular which you thus get. We then tried our triangle upon the tallest tree that I know about here—on the Spruce in the Cassiobury Woodwalks, and found the height to be some 135 ft. Timber trees are not very high if Brown, in "The Forester," be correct in giving the following as the mean average height of trees: Oak, 45 ft.; Ash, 38 ft.; Beech, 45 ft.; Birch, 47 ft.; Elm, 44 ft.; Lime, 44 ft.; Poplar, 48 ft.; Fir, 57 ft.; Chestnut, 44 ft.; Sycamore, 37 ft.; Yew, 16 ft.

The Panshanger and Grimston Oaks.—I have reserved as an example of a tall tree the Panshanger Oak, which is now, I regret to say, "in a very poor way," and not long for its present lofty position. The ground appears to be undermined beneath it. The whole height, as given me by a timber dealer's measurement, is 73 ft., but I distrust his measuring to the very top of what he would call waste. Indeed, another measurement gives twice this, 140 ft., as the extreme height, but that again has not my confidence. The branches, he states, stretch southwards 60 ft., and northwards 35 ft., making a shelter of some 100 ft. in diameter. All accounts agree that it increased rapidly in the later years of its growth. According to Clutterbuck, between 1719 and 1805 it added 480 cubic ft. of timber to its contents. A certain Mr. Barker, timber measurer, of Bishop's Stortford, says that this growth had not ceased in 1795; further, that in fifteen years from 1710 it had increased only $1\frac{1}{2}$ in. The value of the tree, as containing seventeen loads of timber at £15 per load, with top and bark, the valuer, Mr. Ellis, in 1811, places at £225.

There is another and a nearer tree, an Oak of this same character, which I wish to commend to you. It is the Grimston Oak at Oxhey. This tree, insufficiently known, stands a few yards from Oxhey Chapel. It measures 17 ft. in circumference, and 24 ft. in "length," which means, I suppose, the length of its branches. I should have taken it to be about that number of feet to the branches. It was planted by James, second Viscount Grimston, who died in 1773. The tradition of the family, Lord Verulam tells me, is that his great-grandfather planted this tree with his own hands. Supposing him to have planted the tree some twenty years before his death—his eldest son was twenty-six years old at his death—you get a fair idea what a well-grown Oak would become in 120 years' time.

I would like to mention an Ash in my parish, not because of its extreme size, but because I do not happen to know a finer, and because it is a very well-grown tree. It stands at the Hyde Lane Farm, in Abbot's Langley parish, and is 12 ft. round. It has a fine, clear, straight stem, appreciated only by standing directly underneath the tree. It once, I am told, had a narrow escape from the usual fate of trees, becoming the axle of a water-wheel. It then, many years ago, said the old top-sawyer, my informant, contained three loads of timber.

Queen Elizabeth's Oak.—I have now to speak of those trees which, without reference to height or girth, are famous from historical associations. Foremost among these stand out Queen Elizabeth's Oak at Hatfield. Half-way down the avenue leading from the house towards Hertford, and surrounded by a fence, and not in vigorous health, or of a very remarkable bulk, stands this tree, which I myself years ago visited with reverence and brought away a leaf (I would not have broken off a branch) to be preserved among such mementoes of our history. On the morning or afternoon of November 17, 1558—for Mary died between 4 and 5 a.m.—Elizabeth was sitting under this tree when a deputation arrived from the council to apprise her of her sister's demise and to offer her their homage. She fell on her knees, and exclaimed in Latin, "*Domino factum est illud, et est mirabile in oculis nostris.*" "It is the Lord's doing, and it is marvellous in our eyes."

The Boscobel and other Oaks.—Noting the late season of the year, November 17, at which this hardy Queen had seemingly sat out-of-doors, I hope that it will not be impertinent of me to correct here a mistake of which I have certainly heard a young lady guilty with regard to another famous Oak tree. "Ah!" said an accomplished fair one to me on a chilly May morning, when the spring was very backward, "King Charles could hardly have been hidden in the Oak on the 29th of this May." No, my dear miss, nor was he hidden on the 29th of any May. The battle of Worcester, as the battle of Dunbar—Cromwell's two crowning mercies—was fought on September 3, his dying day, and said to be also his birthday until Mr. Carlyle and others produced the entry showing that he was born and christened in St. John's parish, Huntingdon, in April, 1529. The entry into London took place on Charles's own birthday, May 29, and then in memory of the Boscobel transaction the Oak leaves were worn. Of this Boscobel tree, let me say (before I leave the subject) a descendant is said to exist in Gadebridge Park, but my enquiries after the truth of the tradition have been unsuccessful.

I have not quite done with Queen Elizabeth and her connection with Herts and Hertfordshire trees. There is another domain in Herts or its border, only less closely connected with this royal lady than Hatfield. Look into the index to Miss Strickland's "Biographies," and you will find some half-dozen references to Ashridge. I have heard that the house at Ashridge stands partly in one county and partly in another. The parish church, Little Gaddesden, where the Bridgewater family lie buried, is in Herts. Of the Ashes which gave name to that ridge only one remains, as far as I could observe on my visit the other day. Under this tree, or one of its fellows,

we may think the Princess Elizabeth also sat, and so very likely used to sit the *bons hommes* of Ashridge—the hermit priests who formerly owned that beautiful spot, and who lie in the church which the house itself includes. It will be next in chronological order to notice the Oak Wood in Gorbamby. This is a wood at the back of the house specially so called. When Lord Chancellor Bacon was in financial difficulties, it was suggested to him that he should cut down this particular wood. "What! man," said he, "would you have me pluck out my own feathers?" And so the trees escaped, and some, I believe, are now standing. The circumstance is told in most Lives of Lord Bacon, as if it applied to Oaks generally, and they are spelt with a little "o." Lord Verulam tells me that the tale hangs round the particular Oak Wood, as distinct from another, Brook Wood, &c. I come to Moor Park to notice two traditions with regard to trees there. Moor Park was owned once by Cardinal Wolsey, perhaps in virtue of his connection with St. Albans as Abbot *in commendam*. There is a tree which, Lord Ebury tells me, goes still by the name of the Cardinal's Oak. He described to me its exact situation. Lord Ebury thinks that it had its name rather from the fact of the Cardinal's having sat under it than having planted it. It is too old, according to Dryden's lines, to have had its beginning only some 350 years ago. The other Moor Park tradition is as to the beheading of certain trees there. The estate undoubtedly belonged to the Duchess of Buccleuch, who is introduced into Scott's "Lay of the Last Minstrel" (canto i., introduction). This was Anne, Duchess of Buccleuch and Monmouth, representative of the ancient Lords of Buccleuch, and widow of James, Duke of Monmouth, who was beheaded in 1685. And, says the tradition, on her husband's execution, she beheaded sundry of the forest Oaks in the Park.

I would try to enlist on your parts a feeling of conservative preference for the older kinds of trees. I think that our old English trees have got such a character of their own, and give such a character to the landscape, that there is a loss when their monopoly of the fields is largely invaded. I grudge to see some of the foreigners prominently introduced into what I venture to call "our parks." I know a park a few miles hence where the *Araucaria imbricata* is pushing its hard puzzle-monkey branches into the air. *Deodaras*, *Wellingtonias* (or, as they are now called, *Sequoias*) are following up the invasion; and I can imagine these colonial gentry will look down upon Oaks and Elms in the days of our grandchildren. I am aware that this objection is narrow, and a like narrow-mindedness, 200 years ago, would have kept out Cedars. Happily, a passing expression of complaint has little effect either way. I would only press my stricture so far as to urge that large planters shall not introduce these strangers in too large a proportion, and so alter the character of the English forest scenery.

THE DWARF JUNE-BERRY.

(*AMELANCHIER CANADENSIS* VAR. *ALNIFOLIA*.)

We have had a single plant of the Dwarf Juneberry for five years, and the more we see of it, the more we like it. In bloom it is as pretty as many of the *Spiræas* which throng every garden, and in fruit it is one of the most luscious-looking shrubs in cultivation. Now, when we can procure ornamental plants—whether shrubs or trees—that are in every way as ornamental as those which do not bear edible fruit, why not give them the preference? *Exochorda* (*Spiræa*) *grandiflora* is a shrub everywhere praised for its beauty. Its flowers are larger than those of our Dwarf Juneberry, and it grows to twice the size, being, indeed, when fully grown, a small tree. But in other respects it is in no wise superior. The leaves of both plants are similar, resembling those of the Pear. Now, the Dwarf Juneberry is in fruit far more attractive than *Spiræa grandiflora* is in bloom, so that counting the fruit as worthless, we should still prefer the former, could we have but one. But the fruit is edible. It is sweet and juicy, and while twice the size of *Huckleberries*, is not inferior to them. It begins to ripen the latter part of June, and continues for ten days or more. The berries are first green, then nearly white, then red, then purple, and finally, when fully ripe, a dark blue. Often all these colours are seen upon a single raceme and our readers may judge for themselves that when, as at present (July 2), in the specimen before us, a peck or more of this fruit is ripening upon a single bush not over 5 ft. high, it is as ornamental as any plant can well be. We have compared *Spiræa* (*Exochorda*) *grandiflora* with the Juneberry, because they bear a decided resemblance to each other. *Amelanchier canadensis*, the botanical name of the Juneberry, varies remarkably. Gray gives half-a-dozen different varieties, of which ours most nearly resembles *Alnifolia*. We have just selected leaves to show their dissimilarity, and we find the following forms or outlines: orbicular, ovate, oval, obovate, oblanceolate, spatulate, oblong, and elliptical. All are mucronate—some nearly

entire, some finely, some coarsely serrated—some serrated only near the apex, some half-way, and some entirely down to the petiole.—*Rural New Yorker.*

TRANSPLANTING.

The advantages to be derived from transplanting large trees and shrubs are so numerous that they commend the system to the attention of all those who aim at speedy effects in the adornment of their parks and pleasure grounds, or desire to produce immediate shelter or an effective screen. By a judicious application of the system the growth of a lifetime may be anticipated, and situations the most exposed may at once be clothed and rendered attractive. These advantages have commanded for it the attention of eminent men of all ages, as the writings of Pliny, Cato, and Seneca, among the ancients, and the practices of our own Evelyn, of Lord Fitzhardinge (Treasurer to Charles II.), of Louis XIV. of France, and of Sir Henry Stewart in the early part of the present century, abundantly testify. But in some of the cases recorded the outlay was so greatly disproportioned to the results obtained that the practice of transplanting trees of a large size came to be regarded as a luxury within the reach of the wealthy only.

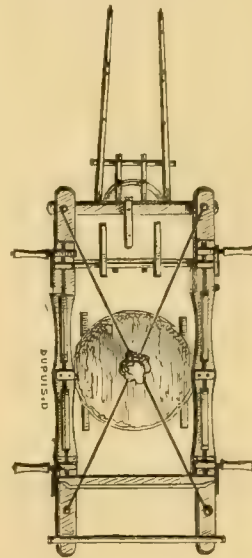
A Greek physician, named Anatolius, who lived in the reign of Constantine, is the first whose writings display an intimate acquaintance with the scientific principles upon which successful transplanting depends. He recommends those who would "remove a large tree to advantage, to open around it a very deep trench or pit, not to injure the branches, to leave the whole of the roots entire, to place it carefully in the new pit, covering up the roots with a quantity of good mould or manure." And modern practice has shown that a close adherence to the above rules will ensure success in ninety-nine cases out of every hundred; for, by a proper selection of trees and soil, by careful manipulation and quick removal, and a moderate amount of subsequent attention, it is almost impossible to select the wrong season for transplanting large evergreens, though the end of the summer or the early autumn is undoubtedly the best, and next to that the spring. Deciduous trees, also, may be thus safely transplanted at any time, except just at the height of the growing season. A warm, moist soil, with a careful watering and liberal mulching, will ensure the safety of large evergreens, even though they may be removed in the middle of summer.

The machines employed in the removal of live trees of large dimensions have varied greatly in construction, and as most of them were made to carry the trees in an upright position, they were generally unwieldy in size. That employed by Louis XIV. in transplanting trees from Versailles to the Bois de Boulogne was long afterwards shown as the wonder of its age. The transplanting machine of Brown, a celebrated landscape gardener of the last century, was among the first constructed to carry the trees in a horizontal position; and it was with a machine of this kind that Sir Henry Stewart effected the wonderful transformation in his park and grounds at Allanton, in Scotland, somewhere about the beginning of the present century. In construction, his machine very much resembled the "janker" or "jigger," now so extensively used in clearing falls of timber. It consisted of a long and strong pole fixed to an iron axle, and mounted upon high wheels. At the opposite end of the pole was a small wheel which worked upon a pivot, and which was removable at pleasure. After the tree had been properly prepared, the machine was brought alongside and placed upright against the trunk, to which the pole was firmly lashed. By affixing cords to the extremity, the tree was somewhat forcibly wrenched from the soil, occasionally at the expense of a considerable number of its roots and smaller fibres. A horse was then attached to the axle of the machine, the roots and branches being tied up to prevent further laceration, guide ropes were put on, and the tree was moved into its new quarters.

Though great success attended the dexterous use of the above machine, preference is now generally given to those which remove the trees in an erect position, with either a small or a large ball of earth

attached. In the practice of Brown both the head and the roots of the tree were much cut away and mutilated; in that of Sir Henry Stewart both were left as entire as possible. In the latter case a trench was opened at a considerable distance from the bole, and by means of the "tree-picker" the soil was carefully removed from between the roots, which were afterwards wrapped up to preserve them from injury. The tap-root was severed, and some of the other large straggling roots were cut away.

For the safe removal of trees with either large or small balls of earth attached, the machine shown in the accompanying illustration

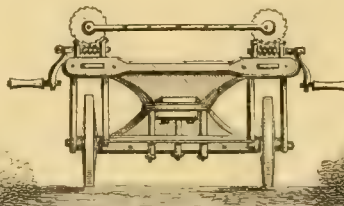


B. View of Transplanting Machine from above.

is admirably adapted. A represents an end view, B a view of the machine from above, and C a side view with the tree in position for removal. These illustrations so clearly show the principles of the construction and working of the machine that a lengthened description is unnecessary. In order to obtain a proper command of the ball a trench is opened out around it at a distance proportioned to the size of the tree, and of sufficient depth to undermine most of the roots. Iron bars are next driven underneath the ball parallel with each other; stout packing boards are placed around the ball and well braced together; chains are attached to the bars and guide ropes to the trunk of the tree or the lower branches; the windlasses are put in motion; the tree being raised high enough to enable it to travel safely over the land, a horse is put into the shafts, and the machine with its load is brought immediately over the prepared site, when the whole is lowered into position, the boards and chains removed, and bars withdrawn. In this manner trees of from 12 ft. to 15 ft. high, and 8 ft. to 10 ft. in the spread of their branches, may be removed with a small ball; and others from 15 ft. to 30 ft. in height, with a proportionate head, with a large ball. It may scarcely be necessary to observe that to prevent accidents all materials used in chains, ropes, &c., should be of the best quality. In raising trees with a large ball stout planks should also be placed under the wheels of the transplanting machine, which may otherwise sink deeply into the soil. The conditions upon which the successful transplanting of large trees mainly depends are—1st, selection; 2nd, preparation; 3rd, removal; 4th, replanting; and 5th, and by no means least, after treatment.

I.—The selection of a tree is not less important than that of a suitable soil in which to place it. And the future growth of the tree will depend very much upon the nature of the subsoil. If possible, no tree should be removed into a poorer soil than the one in which it was reared; but, by a proper preparation of the land, by trenching and drainage, and a liberal use of good composts, defects in the soil may to some extent be remedied. For situations of considerable exposure, such as those generally occupied by single trees, a tolerably stout trunk with a fair thickness of bark, a compact and good-sized head, and abundance of fibrous roots, are the main essentials. Without most of these protecting properties vigorous growth cannot be looked for.

II. Trees intended for removal from sheltered spots should be so opened out and exposed beforehand as to secure a gradual thickening of the bark and a hardening of the sap vessels, as well as a proper density of head. Then a trench should be cut round them at a sufficient distance to preserve a considerable portion of the roots



A. End view of Transplanting Machine.

intact, such trench to be afterwards filled up with a good and moderately light compost. In the course of two or three years this will be filled with an abundance of fibrous roots. At the same time some good manure may be scattered over the whole space between the trench and the trunk. If the head requires any pruning to balance it, now is the time to perform the operation; but the less the cutting of branches the better for the tree. A proper preparation of the soil consists in a thorough trenching and draining where necessary, with the addition of some quicklime and clayey matter for light lands, mild lime and sandy soil for the aluminous, and quicklime with peat Moss for loamy lands. But where the transplant has the advantage of a soil combining the adhesiveness of the aluminous with the friability of the siliceous he is fairly independent of all previous preparation beyond holing for the reception of the tree.

III. During removal the greatest care must be taken not to injure the head, break the bark, or unnecessarily amputate or lacerate the roots. A trench should be opened outside that previously cut round the roots, so that the newly-formed fibrous roots may be taken up uninjured. Where the janker is used and the roots are laid bare the greatest care should be taken to preserve them as entire as possible, and as the unbearing proceeds the smallest fibres should be carefully handled and turned in towards the trunk. When the tree is removed with a ball of earth every precaution should be taken to get well under the roots, to secure all, packing as tightly as possible, and to move slowly and carefully over the ground.

IV. The soil below should be well consolidated before the tree is lowered upon it, and if the bed be made slightly concave or somewhat disked so much the better. All straggling roots should be carefully arranged by hand, and torn ones cut off with a clean section. Where the tree is removed without the ball, the soil thrown in among the roots should be finely pulverised, and only small quantities added at one time, the roots being arranged in tiers according to their positions upon the column. In order to fill up all spaces, water may from time to time be dashed on with considerable force. This will carry the fine earth underneath better than either treading or ramming. With a well balanced head a tree properly placed will seldom require the artificial support of stakes and cords. The thickest and heaviest side of the head may with advantage be turned to the principal exposure. A good ramming after the turf is laid on will be beneficial.

V. Mulching will generally be found the best after-treatment for trees of a large size. Too much watering often does mischief, but when applied it should be thoroughly done. The roots of the Oak, Beech, Birch, and some other trees are very susceptible of drought and of frosts after removal. Wherever upon very wet and retentive soils the trees are at first merely pitted or holed in, the spaces around should receive a good trenching during the following season to permit of the extension of the rootlets, and provision for carrying away redundant water should be made at the same time.

Pluckley, Kent.

A. J. BURROWS.

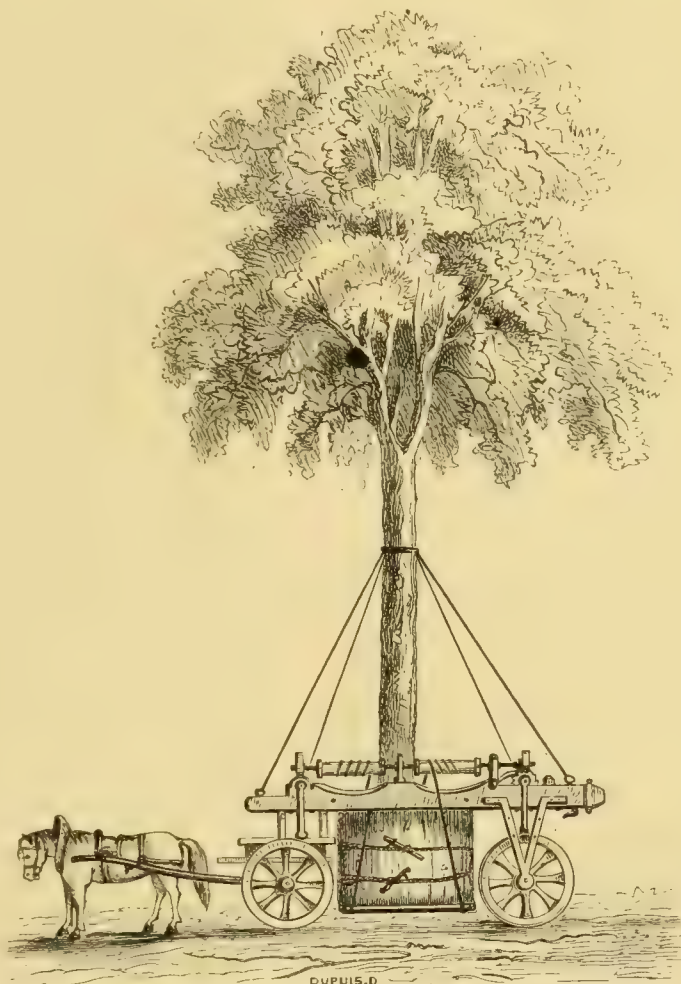
EVIL RESULTS OF FOREST DESTRUCTION.

The immense rush into the great Wheat fields of the north-west of America is justly a subject of gratulation for a hungry world; but do the people of the United States in general, and of Minnesota in particular, understand what the effect is likely to be on the forests, which are so essential to the welfare of every civilised country? The people scattered on the limitless prairies understand very well that forests are not created in a day, and that it is far easier to preserve those already grown than to raise new ones. Minnesota has now probably 10,000 square miles of forests, growing on lands not otherwise considered very valuable; but the fact that they have produced, and are still capable of producing, good timber, shows that these lands are by no means the least valuable part of the State. Are they now being justly dealt by? This is a question of

national importance, and one vitally important to the inhabitants of the prairies. To any one who visits a logging camp in the north-western or central part of the State, both the present waste and the future danger are obvious. Two-thirds of every tree felled for lumber is left where it falls, to become kindling wood for future forest fires, destined to consume from ten to twenty times as much timber as is floated down the rivers. This process has only to be carried on a few years to make an end of the lumber business, and leave nothing but tall blackened stumps amid herbage and brush, which gradually become overgrown and formed into prairies. Of all graveyards, there is none so doleful and desolate as a cremated forest. In a hundred or more years it may become a smiling Wheat field, but in the meantime it remains an awful monument of human folly.

The Government creates a railroad corporation, endows it with timber land, and allows it to ravage as it pleases, at the risk of burning up all that the Government itself desires to retain. Government officers take some pains to stop the stealing of timber, but they adopt no satisfactory measures for the preservation of the forests, though every square mile would well repay the salary of a man to watch it, and see that nothing is either wasted or burnt unnecessarily. The forests of the State are generally interspersed with lakes and meadows, furnishing abundant food

for cattle, and in these forests settlements might very easily be formed, which, by the aid of the animals in keeping down the luxurious growths of Grasses and Watercresses, would preserve the young-growing timber on the public lands from destruction either by fire or by irresponsible marauders. Such settlements should be in sufficient numbers to use up or export for fuel all those parts of trees which are not considered fit for the saw-mill. By a wise and efficient policy of protection, the forest lands of Minnesota would support a considerable population, and supply a continually increasing amount of the most valuable building materials for Nature, with a little assistance, always improves upon herself, and though it is impossible to conceive any subject more worthy of the immediate attention of the enlightened and thoroughly scientific representatives of the people, they at the present time have not been sufficiently aroused to the importance of preserving what purifies the air which men breathe,



C. Side view of Transplanting Machine with tree in position.

prevents the rivers from drying up, repairs and mainly builds the houses, and supplies fuel for the inmates. History records numerous instances of countries rendered uninhabitable by being denuded of trees; and years ago Lindley adduced many cases from France of the wells of a whole district drying up, Olive crops failing, inundations occurring, and many other calamities following the reckless destruction of forests. A. J. BURROWS.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

The Snowdrop Tree on Light Soil.—Mr. George Paul informs us that a small bush of this tree has flowered freely in his nursery at High Beech, where the soil is light; whereas in the Cheshunt Nurseries, in the richer and stronger soil, old specimens of the same tree have never bloomed. We have before noticed the tree flower well on poor light soils. Perhaps this has something to do with the fact that it is so seldom seen for a tree of such singular beauty.

Moving Hollies.—Apropos of the moving of Hollies, it may be interesting to note that a number of these plants, which were sent to the Agricultural Show at Kilburn by Mr. George Paul, and which remained there ten days or so, look now quite healthy in their quarters. The changes were equivalent to two transplantings at midsummer.

Leafage of the Oak and Ash (p. 86).—Did any one ever know the Ash in leaf earlier than the Oak? I have not. I have watched the two trees for many years, and have always found that the Oak is earlier than the Ash by one, two, or even three weeks. It should be remarked that where the Oak can root deeply the Ash can do the same; therefore, the same influences operate upon the roots, and consequently upon the trees in either case. As a rule, too, it is found that trees are more susceptible of leaf action than of root action, or, to put the case more clearly, of leaf influences than of root influences. This is seen in the case of a plant that has its head under glass and its roots in the open air, the extra warmth found in the house promoting growth weeks earlier than would be the case if both head and roots were in the open air.—A. D.

Magnolia grandiflora.—This is undoubtedly the finest of all our wall or pillar plants. The south front of the mansion here is completely covered with creepers, but towering above all, and clothing the lofty pillars that support the central porch, is this Magnolia, beautiful as regards its shining foliage even in the depth of winter, but doubly so now, when covered with masses of buds in various stages of expansion, quite loading the atmosphere with fragrance. Unlike many of our most showy climbers, that so quickly fade, owing to their blooms all expanding simultaneously, this Magnolia continues to expand for many weeks in succession; in fact, the autumn frosts generally cut off the latest crop of blooms. I am well aware that many complaints of flowerless Magnolias are heard annually, and I would recommend any one wishing particularly to flower this fine wall plant to note the conditions under which ours succeed so well. They are planted in the soil under our terrace walk, which, from constant traffic, is as hard as soil can possibly become, and, being a naturally clayey loam, it takes the stoutest of tools even to move it when once it is well consolidated. The aspect is full south, on the steep slope of a hill, so that the sun's rays are concentrated, not only by the huge building behind, but by the hill, clothed with trees, beyond, so as to effectually shut out the north winds. Yet, during the late long winter and still more inclement spring, we had a full share of frost, so that Myrtles, Escallonias, and similar dwarf plants beneath the Magnolia, were very much cut up. But, beyond losing a good many leaves, the result is rather beneficial than otherwise, as the long period of rest has apparently induced a more than usual display of bloom buds.—J. GROOM, *Linton Park, Maidstone.*

Olea ilicifolia.—This is a beautiful evergreen shrub, somewhat like the Holly, with very dark green foliage, and a good close habit. It is perfectly hardy in Mr. George Paul's nursery at High Beech in Epping Forest, and promises to be, and is, a first-rate evergreen. The variegated kind is well known, but this green form is much handsomer, and more valuable for general planting.

Variegated Tulip Tree.—We notice this in Mr. George Paul's nursery at High Beech. The variegation is for the most part a marginal band, which leaves the greater part of the surface of the leaf green and healthy, therefore this is likely to be what is called a "good variegation," as distinguished from those which end in disease or death.

Azalea amena.—We have long known this pretty little shrub to be quite hardy, although it is so often grown in greenhouses, and so frequently forced; but we have not seen it grown so well as a

hardy shrub as in Mr. George Paul's nursery at High Beech. There it forms neat little bushes from about 15 in. to 18 in. high, and is quite a sheet of flowers in spring. We hear that a white variety of this valuable dwarf shrub is in cultivation, and if so it will be a great gain. The plant deserves a place in the rock garden, as well as among choice dwarf shrubs.

THE FLOWER GARDEN.

PINKS AND CARNATIONS.*

CARNATIONS are said to have been introduced into England in an improved form from Poland by Gerarde in 1597, and 360 distinct sorts are reported to have been grown in this country in 1676. Hogg and Maddock were the first to take up the cultivation of this fine flower with the intention of raising seedlings and producing plants for sale. Good seedlings at that date were few and far between compared with what are produced now-a-days, thanks to cheap glass and other modern improvements of our time. Hogg stated that a florist who succeeded in raising six good Carnations in his lifetime was to be considered fortunate. This, compared with what has been done by such raisers as Headley, Turner, May, Hooper, and others, shows the vast progress that is being made in the production of new kinds—even taking into account that Carnations are not grown nearly so much as they ought to be. Beginners should commence with the most vigorous and cheap varieties, as many of the prize sorts have been propagated from layers for the last thirty or forty years, and therefore much of their original vigour is lost. Carnations should be planted in well prepared ground, into which has been worked plenty of good old manure; in short, the nearer the ground is half-and-half, i.e., half soil and half manure, the better they will grow and flower. They should be planted from 12 in. to 15 in. apart, so as to afford room for layering every shoot, and they should be staked as soon as they start to spindle up, as the flower-stems are very brittle. If for competition, the buds must be thinned according to the strength and character of the variety, and before expanding many of the sorts require a piece of bast tied round the pods, giving it only a single knot, so that as the flower opens the bast slips gently off; they should also have a stiff paper card cut up to the centre put round the bloom, so as to keep it in form. Blooms for competition require to be protected from rain and bright sunshine. Layering ought to be commenced as soon as the flowers are on the wane, and the layers require to be as little handled or dressed as possible. In fact, it is much better neither to clear the shoots of leaves nor cut the tops off the foliage, but just to give the stems a nick half-way through and then turn up the tops for $\frac{1}{2}$ in. or so. After pegging them down, cover with $\frac{1}{2}$ in. of sharp pit or river sand mixed with a little fresh loam, and give them a slight watering through a fine-roset watering-pot every evening when the weather is dry for two or three weeks. If layered early, they will be rooted in three or four weeks, when they can be removed and the strongest planted out in beds. If the winter is very severe, they should be slightly protected with branches, mats, or a slight mulching of stable litter. The smaller plants can be potted for sale, and if for home use they may be kept either in small pots or set in cold frames close to the glass, where they can at all times have plenty of light and air during winter; nothing is worse for them than a close frame or house. The frames in which I have wintered thousands of plants have had a current of air blowing through a ventilator 1 in. wide back and front under the sash, even when the thermometer indicated 22° of frost; and yet I have not lost a single plant, and have not had a single spot visible on the foliage of any of the plants thus treated.

Modes of Raising Carnations.—If from cuttings, they require to be about 3 in. or 4 in. in length, and they should be put into pots or a cold frame in very sandy loam, and not subjected to much heat. They should, however, be supplied with plenty of water, shaded, and kept close for a few weeks. If put in a cold frame in September they will be found well rooted in spring. Tree Carnations, a class of the greatest use for winter, spring, and early summer decoration, are best raised by means of cuttings. They can either be grown in pots or in a cool greenhouse border, where they can be subjected to plenty of light and air; and, for winter work, a little fire-heat will prove beneficial. In this class there is no lack of fine varieties, thanks to the labours of Mr. Robertson, Seacot, Leith, who has raised many thousands of seedlings, and who has been fortunate enough to have secured a number of gems of various colours (both selfs and stripes). If raised from seed, they should be sown in pots or in a cold frame in May and June, and the

* Read at a late meeting of the Scottish Horticultural Association, by James Grieve, *Fillic Park, Edinburgh.*

young plants should be pricked out when about 2 in. in height. These will make bushy plants fit to plant out in September; they will stand the winter with a slight protection, and flower the following season. All small and weak seedlings ought to be potted and kept in a cold frame, as it is very often the case that the finest varieties are obtained from such seedlings.

Enemies of the Carnation.—Wireworms must be carefully sought for at potting and planting-out time; Potato or Carrot baits put into the pots or beds should be looked over every day and all the wireworms killed. We have ourselves to blame in some measure for the ravages committed by such pests, as we use all sorts of soil if supposed to be new or fresh. All ground may be considered to be new if none of the same tribe of plants has been grown on it before, and by using plenty of good old manure from a spent hot-bed we can easily make it fit for crops of all kinds.

Classes and Properties of the Carnation.—1st, *Flakes*, i.e., flowers with two colours, the stripes running through the petals lengthwise; 2nd, *Bizarres*, i.e., flowers striped with not less than two colours and the ground colour, making in all a three-coloured flower; 3rd, *Picotees*, which can be either white, yellow, slate, or any other shade, with an edge round each petal of a distinct colour, broad or narrow, the flowers being free from all spots or blotches on the surface; 4th, *Tree Carnations*, which are profuse flowerers of various colours, and free from all bursting of the flower-pods; 5th, *Cloves*; this is a class of self-coloured flowers, much admired for their fragrance, profusion of bloom, and hardness; the form of the flower should be half a ball, the petals large, broad, and of fine substance, and quite smooth on the edges; the colours should be rich, clear, and well defined, and the petals smooth and without confusion.

The Pink.

Pinks are considered to have been produced from *Dianthus deltoides* and *D. plumarius*, both natives of this country. They are therefore much hardier and dwarfer than the Carnation, and produce flowers in the greatest abundance. In order to grow them well for show purposes, the ground requires to be very rich and well prepared the year beforehand, and to be planted early in autumn as soon as they can be got rooted after August 12. They can be grown to great perfection when planted 9 in. by 9 in. plant from plant every way. If the winter is very severe, they are none the worse for a little litter being put over them, especially after the new year before the days become long and bright, and cold east winds and slight frosts occur at night. In spring the beds in which they are grown will be much improved by stirring their surface a little, and giving them a top-dressing of fine old manure and a slight dusting of guano. As they push up their flower-spikes they should be staked, and if for competition the buds should be thinned, as a number of varieties produce buds too freely. Flowers for competition require to be shaded from rain and bright sunshine.

Where seed is wanted they should be protected from wet, and as the flowers decay the withered petals should be removed, as they encourage damp, and also form a harbour for insects. Seed requires to be sown early in June in pots, or in the open ground, and saved only from some of the finest and most constant varieties, such as have a vigorous hardy habit of growth. I have found it advantageous to knee or slightly break the flower-stems, an operation which induces the pods to fill better. Pinks are also easily propagated by pipings or layers. Pipings can be taken off when the bloom is on the decline and put into a spent hotbed or cold frame, where they should be kept close and well watered, and shaded for fifteen or twenty days. I have also been very successful in rooting them in sand and water in flats in a greenhouse or frame. When rooted it is best to prick them off into a frame or store-bed until they are wanted for sale or for planting out. They are easily layered, and layers make strong plants sooner than pipings. Seeds may be sown early in June either in pots, frames, or in the open ground. At present I have between 2000 and 3000 seedlings from 1 in. to 2 in. in height. These I will plant out in August or September, and they will flower the following July, when I expect to be able to select a number for propagation and proving, as seedlings, which look well in the seed-beds, often turn out, when propagated, to be of very little value. Good Pinks should be large, the petals smooth, of fine substance, and very constant in their marking, and not too full, so as to cause confusion and spoil the symmetry of the bloom.

There is also a class of Pinks suitable for forcing of the greatest service to those who require flowers of fine quality and fragrance early in spring or summer. These are all very free flowerers and vigorous and branching in habit. The flowers are both self striped and belted; nor must I omit the Mule Pinks, a class for border decoration too well known to need description. Concerning Alpine kinds, which are principally grown in pots or in the rock garden, I will only mention that *Dianthus alpinus neglectus* and *D. dentosus* are too good to be lost sight of.

Last of all I must say a few words in praise of Sweet Williams single and double. They are generally sown in May, June, and July, and planted out in autumn or spring, and they will flower profusely when a year old. There is a large number of varieties of Sweet Williams in cultivation, but those known as Auricula-eyed are the finest. The heads and pips of flowers should be large and smooth, and the colour dense and bright. There is also a sub-species known as *Dianthus nigrescens*, with very dark foliage and rich crimson self-coloured flowers. Plants of this when in full bloom studded with white anthers have a fine appearance. There are also a good many sorts which are generally propagated by cuttings; the double variety of *nigrescens* is a dwarf and dense-growing plant. From a hybrid which I have raised between the Sweet William and the Pink I obtained some seed, and from this I have raised a number of good and distinct varieties.

MAKING AND PLANTING ROCKWORK.

THE making of rockwork on which to cultivate rock and alpine plants, and also as an example of good taste and variety in the garden, is a labour often undertaken, but one which is very difficult to execute. Legions of examples of rockwork are to be found all over the country—indeed, in most gardens—in more or less good or bad taste, from the offensive heaps of vitrifications from brick and glass works, to the admirable imitations of stratified rocks on a large scale executed by Pulham, with the assistance of the mason's art and plenty of cement. Indeed, so good is the imitation that one might fancy the quarry brought bodily into the garden, as they move houses in America. The best specimens of artificial rockwork are generally to be found where the natural rock and rock scenery are most abundant—where Nature's materials are at hand, and where Nature is near to show the way. The worst specimens, on the other hand, are to be seen where the difficulties of site and materials are the greatest—where the products of the glassworks are pressed into the service, and where the site would be more suggestive of a brick-yard than of a rock garden. I think one grand flower-show at least can be remembered—an international one—where the rockwork was made of coke. Between Pulham, on the one hand, and the coke rockery on the other, there is room for many varieties of the art and mystery of rock making, and the gap is well filled up. When a rockery is to be made, two primary objects should be kept in view. The first is, that the fabric to be constructed shall be pleasing to the eye, and harmonise with its surroundings,—that it should not look toy-like, too artificial or incongruous, but be an agreeable feature in the garden; and the second is, that it be so constructed that it shall be suitable for the growth of the plants desired to be cultivated on it. A rockery may be a first-rate imitation of a real rock or cliff, showing the dips, stratification, and other features, and yet offering but small facility for the introduction of plants, thus favouring one of the objects at the expense of the other—just as magnificent conservatories are sometimes built in which plants can only languish.

In order that a rockery may not be offensive or incongruous the site must be well chosen. Pyramids of stones on a flat surface, an amphitheatre, symmetrically arranged, fronting a shrubbery or in the corner of a terrace, or in any geometrical position adjoining buildings, are instances of positions where rockwork would be out of place. But given an abruptly sloping natural declivity—if adjoining water all the better, and if the aspect can be varied by bending round an angle, better still—there a rockery may be made. The site may even be artificially improved in deepening the slope, by adding to its height with soil or planting. We do not think that it is at all necessary that a rockery should be an exact copy of nature in any of its forms—either of stratified rocks or the many forms in which the detritus of rock is found. A tasteful piece of rockwork may be made without any very close imitation of nature,—just as a landscape can be thrown on canvas by the painter which at once pleases the eye of taste, artificial though it be, by the truthful look there is about it. A certain amount of Nature's guidance must be admitted, as a matter of course; for instance, irregularity and variety, as if by chance, an orderly disorder in which, like Hamlet's madness, "there must be method." The materials must be natural fragments of rock—not water-worn stones, or stones with any indication of the quarry about them: unstratified rock we like the best. These can be so arranged that an endless variety of little terraces and recesses, and pockets and ridges, from base to summit, can be made to suit any variety of plants, from the shallow-rooting Saxifrage to the deep-rooting Gunnera. Overhanging ledges can be made, with recesses for shade-loving plants. In short, in the construction, our second object proposed—that of preparing suitable positions for the plants desired to be cultivated—must ever be kept in mind.

The most of our European Alpine plants require a permanently moist soil, as every one knows who has trudged the mountain slopes

in search of plants, although many do prefer a scanty soil on cool rocks—which means that no position exists which may not be selected by some plant where to live and thrive, as witness the stone-and-lime wall seen from our window, covered with *Aspleniums*, *Scolopendriums*, *Ceterach*, *Drabas*, *Linarias*, and many more things equally green, if with names more homely. Some require the cool moisture of running water always among their roots, as the *Parnassia*, *Narthecium*, or *Pinguicula*; and if a trickle can be conveyed over some part of the rockwork, it will be the one source of success in many instances. Some will require a sharp shingly soil, as the *Dianthus*, which can be supplied in the shape of the smaller broken chips of the rock, giving an opportunity of varying the construction of the surface. Some plants require a stiff, holding soil, such as the *Primulas*, which can be supplied in little flat terraces formed to catch all the rains. Others, as the dwarf *Veronicas*, such as *taurica*, will thrive on dry, sloping ledges; the various *Thymes*, *Aubrietias*, *Erodiums*, and some *Geraniums*, are of this class. Many of the smaller shrubs are most appropriate as rock plants. Ivies of the finer class, such as the variegated, may be made to creep over large blocks, or the pretty *Ampelopsis Veitchii* in the same way. *Muhlenbeckia complexa*, which has stood the late winter on the rockery, is a choice plant for fringing a ledge. The *Kilmarnock Weeping Willow*, in a dwarf form, will spread its long, slender branches over some peak, as well as the *Savins* and *Periwinkles*, *Rock-roses*, and *Genistas*, and many more of a woody character.

We have been supposing the rockery to be on a somewhat enlarged scale; of course its extent and form must be determined by the requirements of the owner, and the nature of the position to be occupied. It may be curved either outwards or inwards, it may be of a long ridge shape and undulated, or it may be in the form of a group of hills and valleys, and need not after all cover an extravagant area, or require by any means an extravagant amount of stones. One of the best managed of this last kind which we have seen is in the grounds at Down House, Dorset. Whatever be the shape, if the rockery has any pretension to be anything more than a mere toy by the side of a walk, provision must be made to give access to the different parts, in order to be able to clean it and attend to the plants, and particularly that the owner may conveniently at any time enjoy an examination of his plants. This can be managed by introducing a pathway, curving and undulating about among the different compartments. These pathways can be made a feature of the rockery itself, and far from spoiling its appearance, can be made an improvement. The pathway itself, of course made with pieces of rock, should be planted with *Sedums*, or *Stellaria*, or prostrate *Pyrethrum*, or any creeping plants not easily destroyed. Sometimes a rockery can be made more imposing, if the scale is large, by having groups of the smaller Pines planted on the higher parts, such as *Pinus Pinea*, *Abies orientalis*, or any of the dwarfer, pendulous forms of *Abies excelsa*, or plants of the common *Sumach*, *Spiræa Lindleyana*, or indeed any of the *Spiræas*, where they would not interfere with the well-being of the choicer plants below. When a rockery abuts upon Grass, it is always well to have a narrow margin of rough gravel following the undulations of the base, for the sake of tidiness.—*The Gardener*.

NEW MUSAS.

In the "Catalogue of New Plants, &c.," recently issued by M. Salviati, of Florence, the following Sumatran Musas are announced as being ready for distribution:

Musa sumatrana (Beccari).—This elegant and quite new Banana-tree grows wild in the virgin forests of Sumatra, along with the wonderful *Amorphophallus Titanum*. Its elongated foliage is of a sea-green colour, and even in the young specimens it is elegantly striped with maroon-red. It produces bunches of cylindrical curved fruits, from 3 in. to 4 in. long of the size of one's little finger. Its flowers are unknown; but the species is well distinguished among all those which produce falling fruits, by its flattened seeds, with sharp and irregularly toothed edges. It is a very ornamental plant, on account of its beautiful foliage, and will succeed on the open ground in summer.

Musa troglodytarum.—The name given to this plant is most appropriate, for it is the Banana tree of the first inhabitants of the forests, i.e. the apes. The fruits of these plants, which culture has rendered exquisite and nourishing, are filled in the wild state with an innumerable quantity of seeds, which, although enveloped in a small quantity of sweet and agreeable pulp, render them unserviceable for human nourishment. The present species is of the greatest interest; for while those cultivated under the names of *Musa Sapientum*, *paradisica*, *rosacea*, &c., are forms produced by culture, and do not give seeds, this species is still in the primitive state; and those which man has known how to ameliorate and transform into

very useful plants, are doubtless derived from the latter. The seeds have been gathered on Mt. Singalang, in the island of Sumatra, at the height of 5000 ft. above the level of the sea, where the thermometer in the morning fell to + 10° or + 12° (from 50° to 55° Fahr.). It is a species of great scientific interest, and its beautiful form and superb leaves render it ornamental in gardens, since it will contribute much to their outdoor decoration during summer.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Bocconia cordata.—This is a truly noble plant for shrubbery borders or the wild garden. Its beautiful foliage alone has a grand appearance, but when surmounted by tufts of large, feathery, spire-like flowers, it forms a conspicuous and noble ornament to any garden. It is of very easy culture, and when once planted soon increases so as to form large clumps by means of its spreading underground roots. With us it grows from 7 ft. to 8 ft. high; for mixing with large masses of shrubs it is invaluable, as it comes into bloom after most of the flowering shrubs are over, and gives a cheerful look to what would otherwise be a sombre mass of foliage.—J. G.

Sempervivums.—My plant, supposed to be *S. Pomelli* at the late Manchester Show, has at last flowered, and Mr. Baker pronounces it to be *S. arachnoideum majus*. When this plant was first alluded to at St. Alban's Court (Vol. XV., p. 492), it was represented to be a variety of *S. arachnoideum*, with a good deal of red on the rosettes.—E. JENKINS, *Newton Nurseries, Chester*.

Canterbury Bells.—These comparatively neglected flowers are capable of very good effects. We have a good many planted in mixed beds and shrubbery borders, and at present they make a fine display, loaded as they are with large white and blue bells. They should be treated as biennials; and by sowing a bed every year, and transplanting them in due course to their permanent flowering quarters, one may ensure a fine display, let the season prove ever so adverse.—J. G.

Stevenson's Blue Lobelia.—In a season by no means favourable for bedding plants, this has been most effective. We have a double line of it in ribbon borders, two hundred yards in length, and it forms the most brilliant mass of deep blue imaginable. The plants were all raised from cuttings early in spring, putting about 200 in an ordinary cutting box, and as soon as struck hardening them off, and transplanting them into cold frames until required for planting.—J. Groom, *Linton Park*.

Amaryllis longifolia alba (syn. *Crinum capense album*).—Plants of this fine Amaryllid in the Newton Nurseries, Chester, have withstood the severity of the past winter in the open ground and are now flowering profusely. The flower-stems are some 2½ ft. in height, and on one spike alone I counted some thirty flower-buds, several of which are now fully expanded. It is growing in a deep rich sandy loam, which it seems to thoroughly enjoy. It makes an excellent companion for some of the earlier flowering Lilies and similar plants in the mixed border.—E. J.

The Flame Nasturtium at High Beech.—*Tropæolum speciosum*, of which we hear so much as a brilliant ornament to Scotch houses and gardens, has been grown in a most interesting way in Mr. George Paul's nursery at High Beech. Mr. Paul has a long row of it in the best condition parallel with a Yew hedge. Stakes are leant against the Yew hedge, up which the shoots of the *Nasturtium* grow, and, by-and-by, they will mingle with the Yew. In such a position their wreathed scarlet flowers will be very attractive. The plants are beginning to flower now, and a little later on they will probably form one of the most beautiful of garden pictures.—V.

Ornamental Grasses.—These are now so largely used in the dressing of epergues, vases, &c., that the committee of the Ealing Horticultural Society do good service to those who have a taste for domestic floriculture, by offering prizes for the best collections of six kinds of Grasses, shown in bunches. It is very evident that wild Grasses, let them be ever so fresh and good, have little chance against cultivated Grasses, as amongst these are many that are very beautiful. The small and exceedingly elegant *Agrostis nebulosa* is one of the most charming; and there are few who would not find it worth their while to grow a few large pots or pans of some half-dozen kinds, thinning out the plants, as with plenty of room the floral heads are much prettier and better developed than if crowded. I think it is worthy the attention of committees of flower shows to consider the desirability of offering prizes for Grasses in pots rather than in bunches, as this would enable the usefulness of many kinds for greenhouse decoration to be fully displayed. Sorts that grow from 12 in. to 13 in. in height would be the most suitable; they should be grown in frames near the light, to prevent undue height, and should

have plenty of water. Wild Grasses are this season unusually fine and abundant. A walk amidst fields and rural lanes, collecting samples in bunches of all the kinds that are worth gathering, would offer to many a pleasant and profitable way to pass leisure hours. Gathered now, they need full drying, and then they may be employed for vase and flower decoration all through the next winter.—A. D.

SCENE IN THE LATE MR. HEWITTSON'S GARDEN AT WEYBRIDGE.

TRUE taste in the garden is unhappily much rarer than many people suppose. No amount of expense, rich collections, good cultivation, large gardens, and plenty of glass will suffice; all these and much more it is not difficult to see, but a few acres of garden showing a real love of the beautiful in Nature as it can be illustrated in gardens is very rare to see, and when it is seen it is often rather the result of accident than design. This is partly owing to the fact that the kind of knowledge one wants in order to form a really beautiful garden is very uncommon. No man can do so with few materials. It is necessary to have some knowledge of the enormous wealth of beauty which the world contains for the adornment of gardens; and yet this knowledge must not have a leaning, or but very partially, towards the dry-as-dust character. The disposition to "dry" and name everything, to concern oneself entirely with nomenclature and classification, is not in accordance with a true gardening spirit.

The garden, of which we here give an engraving from a sketch by Mr. Alfred Parsons, contains some of the most delightful and original bits of garden scenery which we have ever seen. Below the house, on the slope over the water of Oatlands Park, and below the usual lawn beds, trees, &c., there is a piece of heathy ground, a portion of which is shown in our engraving, and which when we saw it was charming beyond any power of the pencil to show. The ground was partially clad with common Heaths with little irregular green paths through them, and abundantly naturalised in the warm sandy soil were the Sun Roses, which are shown in the foreground of the sketch. Here and there among the Heaths, creeping about in a perfectly natural-looking fashion, too, was the Gentian blue Gromwell, with some varieties of other hardy plants suited to the situation. Among these naturalised groups were the large Evening Primroses and *Alstremeria aurea*, the whole being well relieved by bold bushes of flowering shrubs, so tastefully grouped and arranged as not to have the slightest trace of formality about them in any way. Such plants as these are not set out singly and without preparation, but carefully planted in beds of such naturally irregular outline that when the plants become established they seem native children of the soil as much as the Bracken and Heath around. It is remarkable how all this is done without in the least detracting from the most perfect order and keeping. Closely-shaven glades and wide Grass belts wind about among such objects as those we allude to, while all trees that require special care and attention show by their health and size that they find all they require in this beautiful

garden. It is more free from needless or offensive geometrical-twirling, barren expanse of gravelled surface, and all kinds of puerilities old-fashioned and new-fangled than any garden we have seen for years.

THE KITCHEN GARDEN.

CULTURE OF SPINACH.

ALTHOUGH Spinach is of easy culture some forethought is necessary in order to have it in good condition throughout the summer. As in the case of salading continuous regular sowings must be made, and a little neglect in this respect soon creates a serious gap in the supply. Frequent sowings and a deeply dug richly manured soil constitute the main elements of success in the culture of this wholesome esculent, and it is the non-observance of either one or the other of these important points, or perhaps of both, that accounts for the difficulty which many experience in maintaining a supply of tender juicy shoots during the summer months. Spinach is largely grown in Germany, where, owing to the severe winter, greens of all kinds are difficult to obtain early in the spring. It and Lettuces have to be relied upon for the first supplies, large breadths of them being sown early in the year, the Lettuces being cooked in much the same manner as the Spinach. It sometimes occurs in this country that a severe winter seriously cripples both the winter greens and those planted for spring use, in which case a few early sowings of Spinach would be found very acceptable. Occupiers of small gardens often commit the error of sowing too much at once. More is grown than can well be consumed when good, a great portion runs to seed, and just at the time when a picking would be very acceptable it is found that nothing but wiry stems and tough leaves remain. The same amount of seed, sown at frequent regular intervals, would furnish a continuous supply.

For the first sowing, which may be made towards the end of February, a warm and well drained spot should be chosen. The ground should be deeply stirred, incorporating with it some well rotted manure. Choose a fine day when the soil works free and mellow, and draw some broad shallow drills about 1 in. in depth and 1 ft. apart. It is well at this season to sow somewhat thickly, as owing to the coldness of the soil the seed does not always germinate freely, and vermin are apt to destroy a great portion of the seedlings as they appear above ground. If later on it is observed that the plants stand too thick, timely thinning must be practised. The ground should be well stocked, but good space is to be allowed between each plant; nothing is gained by crowding. Some good free light soil, such as the knocking out of pots with which some finely sifted cinder ashes have been mixed, will be found better for covering in the seed than the ordinary garden soil. The spring culture of Spinach does not present any great difficulties, the most cool atmosphere which more or less prevails during April and May, favours



View in the late Mr. Hewittson's garden at Weybridge.

its growth and allows it to become fully developed before it manifests any inclination to run to seed. When, however, the hot days of June and July arrive the case is different; then, unless high culture is practised, the plants will go to seed almost before they have furnished a picking.

For summer culture the ground should be at least bastard trenched, forking in some good rich manure. The seed should also be sown in drills, so that a flooding of sewage or manure water of some kind may be administered in hot weather. In order to obtain first-class Spinach in summer, the plants should never, from the time they are out of the seed-leaf, know the need of moisture at the root. A free, unchecked growth must be promoted and maintained. The leaves will then acquire that delicate flavour which is characteristic of, but which is too often found wanting in this vegetable. As I have before observed, frequent sowings are indispensable, and for a small household a pinch of seed sown every ten days or a fortnight would suffice to furnish a picking when needed. In order to ensure germination in dry weather, it is necessary to thoroughly soak the drills before sowing the seed. If the seed is then lightly covered and watered, and a sprinkling of dry earth spread over it, no further attention will, unless very exceptional weather prevails, be needed until the plants are fairly above ground. If these precautions are not taken, the seed is apt to lie dormant until a change in the weather takes place, a blank in the supply meanwhile occurring. I should add that a very open, sunny position should be selected for the summer culture, as, if grown in shady, over-sheltered situations, the growth made is of a weakly description, and the plants quickly run away to seed. For winter use choose a piece of well-drained and sheltered ground, and sow about the commencement of August, so that the plants have time to get strength before the cold weather arrives. Sow in the same manner as directed for the summer culture, and thin out to about 4 in. apart, which will allow of the plants spreading, and will better enable them to resist cold and wet than when growing thickly. Care must be taken to prevent the encroachment of weeds, the growth of which progresses at a rapid rate during the moist days of early autumn. A dressing of soot at this period would also be found beneficial. It is not a rampant, but a solid, compact growth that is most desirable at this time of the year, and soot and lime are the best manurial agents that can be employed for the purpose. They also serve to keep at bay the multitude of small snails and slugs which in the damp autumn days are apt to be so troublesome. The large-leaved Australian variety is very useful for summer culture. If planted in rich ground it grows very strongly, and furnishes a large amount of succulent, though, in comparison with the round-leaved kind, rather coarse leaves. This defect may by means of liberal culture be to a considerable extent removed.

J. CORNHILL, *Blythe*.

RAISING SEAKALE.

IN answer to "J. S. W.," allow me to say that a piece of fleshy root from 3 in. to 6 in. long must perforce have more strength and organisable matter in it than a seed; in fact, it is a plant in itself, lacking only the eyes or buds at the crown to start, and of these it long before contained the germ. I have no fault to find with raising Seakale from seed, as it is advisable to do so occasionally, especially where the roots have been subjected to hard forcing; but it is when pieces are planted from them after undergoing that process that they are weak and sluggish in moving. Perhaps these are the kinds of sets "J. S. W." has tried, and, if so, I do not wonder that he prefers seedlings; but if he will go deep and save the large pieces when digging up the crowns, and try them, I am sure he will at once see how superior they are. I well remember some thirty years ago reading Cuthill's book on "Market Gardening round London," and I think that was about the time when propagating Seakale by means of thongs first came into notice. If the plan had not answered better than seedlings it would not have been so generally adopted in place of the latter method. I have repeatedly tried the two side by side, and I could always get by far the best plants in winter when I used roots, and any one who has dug up a plantation knows how persistently the pieces left in the ground appear above it again and again. If it is the best way to get Seakale from seed, why not Horse-radish? as the habit of the two plants is precisely the same; but it may be objected that the one is grown for the sake of its crown, the other for the fleshy underground stem, and yet you cannot have the former large without the latter being in proportion to it. As regards the distance at which I plant Seakale, and about which "J. S. W." has commented, I may add that although I stated the plants to be 1 ft. apart, the rows are 2 ft. apart, which is quite far enough in ordinary soil to allow the leaves to have full spread. The way in which we manage this esculent here, and which I believe to be as good as any, is to have

plantations one under the other as it were, and to force them at two or three years old, which sets prepared ground at liberty for some other crops and affords a better rotation. In the winter the beds are covered with long stable manure or the straw from the icehouse, which is put on sufficiently thick to blanch the crowns of the Seakale as it grows, and when it is done with for this purpose it is in good condition for littering down Strawberries, to the beds of which it is removed as the Kale is cut. This is better than having to depend on one-year-old plants for forcing, whether grown from roots or seed, as, being so much stronger, the produce is always more satisfactory.

S. D.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Late Peas.—In addition to late sowing, there are various ways of delaying the bearing of Peas, so as to convert what would otherwise be a glut into a regular and prolonged supply. It sometimes happens that after a period of cold chilly weather, which seems to keep everything at a standstill, there comes a hot burst of summer which brings such things as Peas all in together. If, in the case of Peas, this change could be anticipated, and the tops of a certain number of the late rows pinched off, the flowering would be delayed for two or three weeks, and if the Peas had not been sown too thickly, there would probably also be a more prolific crop, as many of the shoots so pinched will throw out several lateral shoots that will flower and pod freely during genial weather. The rows should be mulched on each side to keep the soil cool, as well as to keep in the moisture. If the pods are picked carefully from such kinds as Huntingdonian and others of the Champion of England section as soon as they are fit for use, a second crop of pods will follow in due course. I have often had a good late crop in this way from plants that had been allowed room enough to become strong, and so get a good grasp of the soil. If we have now, which is not improbable, a short spell of hot bright weather, Peas and other things will soon suffer from drought unless heavily mulched. This latter process, by keeping the roots cool, enables the plants to draw up a sufficiency of moisture to keep up the foliage of the plants, and prevent a too severe check being given.—E. HOBDAV.

The Best Manure for Turnips.—Judging by the report of the Aberdeenshire Agricultural Association, the question as to the best manure for Turnips seems to have been solved, as far, at least, as Aberdeenshire is concerned. Mr. Jamieson, the chemist to the Association, states definitely, as the result of experiments carried on systematically for three successive years, that the phosphates of lime decidedly increase the Turnip crop, and that cultivators need not trouble themselves to inquire whether the phosphates they employ are of animal or mineral origin. It seems also, from Mr. Jamieson's researches, that soluble phosphate is not so superior to insoluble phosphate as has been generally supposed. Nitrogenous manures have but little effect on Turnips when used alone, but when used in conjunction with insoluble phosphates they increase the crop. The fineness of division seems to assist the crop very materially, and the outcome of Mr. Jamieson's trials seems to be that the most economical manure for Turnips is probably insoluble phosphate of lime, from any source whatever, ground to an impalpable powder. The saving thus effected amounts to about one-third, that is to say, the quantity of manure necessary for an acre of Turnips will cost 20s. instead of 30s.—C. W. QUIN.

Winter Vegetables.—The extreme lateness of the season has a tendency to cause us to forget that the time has arrived for preparing for the winter and spring supply of vegetables and salads. In the case of many autumn crops, even greater care as to sowing at the right date is required than need be exercised with respect to the more important spring sowings, for then a few days one way or the other does not so materially matter. As many crops will be later than usual this year in being cleared off the ground, some disarrangement of the plan of cropping must necessarily ensue; but as Peas, Potatoes, &c., are cleared, late crops of Broccoli, Kale, Savoys, &c., should be planted forthwith. For the earliest Brussels Sprouts and autumn and winter Cauliflowers, it is always advisable to reserve some vacant ground, as if left in seed-beds until the crops are cleared it is too late, even in favourable seasons, to realise from them the full results of which they are capable. The most important sowings at present should consist of the different varieties of Cabbage, which should be now coming up (our earliest are getting forward for winter), and the latest should just be sown. Onions of the Giant Rocca or White Lisbon must be sown at once. Prickly or winter Spinach should also receive attention. We generally sow at two or three different dates, viz., the middle and end of August and early in September, as on some soils Spinach is a precarious but very useful crop. Cauliflowers require great care as to date of sowing; the

end of this month and early in September will be found early enough for mild districts. But for the supply of salading, a good breadth of various sorts of Endive, Cos and Cabbage Lettuces, and Chervil should be got in without delay, for although the summer was late in its arrival, the shortening daylight warns us that the sun's power is already on the decline.—J. GROOM, *Linton*.

Sowing Late Turnips.—In many gardens these follow the early or second early potatoes; but of course, they may follow any other crop, or be sown wherever a vacancy occurs. An open situation suits them best, as they become more compact in growth and are better able to resist cold weather; I always think Turnips grow faster and better when exposed to full and free currents of air. If the land is in good condition, solid manures need not be used for the crop; and, if they follow potatoes, the working the land has received in digging them up will suffice beyond the surface culture always necessary to secure a fine tilth for covering the seed. It is best to sow in drills about $\frac{1}{2}$ in. deep and about 14 in. or 15 in. apart. If the land be dry, the drills should be well soaked with liquid manure previous to sowing. This will be of great advantage to the crop; its influence will be felt as soon as the young plants have begun independent action. A sprinkling of superphosphate along the drills when the seeds are sown will also be most useful if the land is not in good order; and even if the land be rich, a slight dressing of this manure is always of great value in an ungenial season, as it is in the early time of their existence that the fly or beetle is so destructive, and a stimulant pushes them on quickly out of the way of that pest. Hoeing, or stirring of the surface, should commence as soon as the young plants can be seen up in rows; and the rows or drills should have a hoe drawn through them, at the same time leaving the plants standing in little patches about 1 ft. apart. These patches will ultimately be thinned or singled out to one plant. Plants that will, under any circumstances, have to undergo some variation of temperature, should not be left too thick, as they draw each other up weakly, and are not so hardy, and the bulbs are not so good, as when each plant has space enough to form a good tuft or crown of foliage. The last week in July or the first week in August is a good time to sow, and the following are good hardy kinds to grow: Veitch's Red Globe, Orange Jelly, and Black Stone. The early White Stone may be sown in small quantities after the first week in August with a prospect of obtaining usable bulbs, as it turns in quickly. At the approach of cold weather in winter, some of the largest bulbs should be taken up and stored in the same way as Carrots or Beet, and they may have a ridge of soil drawn up on each side of the rows to protect them from severe frost.—E. H.

Laxton's Alpha Early Pea.—This is a first-rate Pea; sown a fortnight later than several reputed second early kinds it was fit to gather first. My experience of the very large-podded varieties is that they all take a long time to fill up after they look fit to gather. Generally speaking Peas are a good crop this year.—J. GROOM, *Linton*.

The Potato Disease.—During the last week this has spread with alarming rapidity, and as the soil is saturated with moisture I fear we shall suffer heavily, as the crops are late and the tubers soft and immature. We have fortunately a change to finer weather at last, but even the increased warmth of the last few days appears to have favoured the development of the malady.—J. GROOM, *Linton*.

—In this neighbourhood, (Huntingdonshire) which is a large Potato-growing district, the disease is already assuming alarming proportions. Even the Ashtop and other early kinds, which usually escape, are in some instances badly affected. The present agreeable change in the weather may perhaps check its ravages to some extent; but under any circumstances there must be a great loss of crop. I should strongly advise all who can to take up their Potatoes before they are badly affected, and plant the land with some crop calculated to be useful either in winter or spring. There is yet time to plant all kinds of winter Greens. As we shall probably have a genial growing autumn, Winter Spinach, Turnips, and Onions may also be sown, any or all of which will at least pay to grow as catch crops.—E. HOBDAV.

Botanic Gardens in Germany.—In Germany nearly every town has its Botanical Garden for furnishing means of instruction in that science; Berlin has two, the larger of which supplies 120 institutions of learning—including 100 common schools—requiring nearly 3,000,000 specimens. The plants are arranged in bundles and distributed in waggons. The flower described by the teacher is illustrated by a living specimen placed in the hand of each pupil. At Heidelberg a new and very handsome garden is being laid out, and in addition the forest trees in the castle yard are labelled with their Latin and German names, also the place whence they come—thus putting "tongues in trees" so that even the most careless observer may gain some useful information.—*New York Tribune*.

NOTES OF THE WEEK.

Zygopetalum Sedeni.—Of the numerous hybrid Orchids that have emanated from Messrs. Veitch's establishment at Chelsea, this certainly ranks amongst the most valuable as a decorative plant, as it flowers when there are comparatively few other kinds in bloom. It is the result of crossing the well known *Z. Mackayi* and *Z. maxillare*, and, whilst it has the free-flowering tendency and robust constitution of both its parents, it is much dwarfer in habit, being only about 12 in. or 15 in. high. The colour of the blossoms is a deep glossy purple, and the lip, which is broad, is of an intense rich purple, beautifully mottled with a lighter hue. It has been for some time in full beauty at the nursery in question.

Gentiana gelida.—In brightness of colour the flowers of this species rival those of the lovely spring Gentian (*G. verna*), and, owing to their being produced in clusters, their brilliancy is much enhanced. It is, moreover, more amenable to cultivation than its better known congener, which is an important point in its favour. It is one of the prettiest plants now in flower on the rockery at Kew, and also in the border collection.

Placards in Epping Forest.—We regret to see that the beautiful glades and nooks here are being defaced by a great number of placards—white boards with black lettering. If these are necessary, which we doubt, they need only be placed at the cross-roads and at important points here and there, and not in quiet parts of the forest within view of each other, as they are near High Beech.

Lasiandra macrantha floribunda.—This showy stove plant we saw finely in flower a few days ago at the Pine-apple Nursery. Its flowers, which measured fully 5 in. in diameter, are of an intense rich purple, and are produced in greater profusion than those of the type. It should therefore be grown in every good collection, as it well repays any extra care that may be bestowed upon it.

Cyananthus incanus.—This pretty Alpine plant is now flowering freely on the rockery at Kew. It differs from the only other introduced kind in having a less vigorous growth and smaller flowers. It has slender, creeping branches furnished with small hairy leaves, and terminated by a solitary flower of a soft, purplish-blue tint. It is perfectly hardy at Kew. It is a native of high elevations in the Himalayas, from whence it has been recently introduced in quantity.

Monarda Bradburyana.—This handsome North American perennial does not appear to be grown much, although it is quite as pretty as the other kinds and very distinct. The flowers on plants of it at Kew are yet in too undeveloped a state to show their true character. Plants of it raised from seed sown last autumn are now about 2 ft. high, and have leaves similar to those of *M. fistulosa*. The flower-heads are arranged in whorls, and the blossoms have long, hanging, three-cleft lips. The colour is rosy-lilac, copiously spotted with deep purple.

Echinacea purpurea.—We have received from Mr. Stevens's garden at Byfleet some remarkably fine examples of this handsome hardy perennial. Its flower-stems, which rise from 3 ft. to 4 ft. high, are terminated by flower-heads, the central florets of which are of a dark brown colour, and form a close, conical boss, on which the golden anthers are shown off to advantage, while the long pendulous straps belonging to the ray florets hang down in the form of a long purplish-pink fringe, thus giving the plant a singular appearance. In order to grow it well, it requires a rich, deep soil in the warmest spots of the garden. It is a native of the Southern and Western United States of America.

Vanda insignis.—In directing attention to this Orchid it is well to state that two plants bear this name, one of which is merely a fine variety of *V. tricolor*. The true plant to which this note refers is a very fine species and somewhat rare in collections. In habit it is similar to *V. suavis* or *V. insignis*. The flowers, however, are very distinct, being of a different form and having a broad open lip of a rich mauve tint surmounted by a pure white crest; the sepals are broad and slightly incurved and deep chocolate in colour, marbled with greenish-yellow. It was in perfection a day or two ago in Messrs. Veitch's nursery at Chelsea.

Ixia and Sparaxis at Tooting.—These charming plants are now making a fine display in Mr. Barr's grounds at Tooting, where they are growing in frames from which the lights have been removed for a considerable time. They contain chiefly varieties of *Ixia* and *Sparaxis*, the flowers of which represent almost every conceivable shade of colour, including the peculiar sea-green tint of *Ixia viridiflora*, with its black centre. It is much to be regretted that these charming plants have of late years fallen into disfavour, for few flowers are better adapted for decorative purposes, and even in a cut state they last a long time in perfection.

Batatas paniculata.—In the Victoria Lily house at Kew this fine trailing plant now forms an attractive object. Its slender branches spring annually from a fleshy stem, and attain many yards in length in the course of the season: its leaves are similar to those of the common Blue Passion-flower, and its flowers resemble in form those of the common *Convolvulus*, but they are considerably larger and of a deep purplish-violet colour. They are produced in clusters, and though each flower lasts but a day its place is taken up by others in succession. It is a very desirable plant, even for small houses, as it does not require much space, neither does it need that excessive heat which some stove subjects do.

Milla longipes.—The brief description given of this new bulbous plant (p. 81) was taken from a cut specimen of it, which was shown by Mr. Elwes at South Kensington. Since then we have seen it growing in masses at Mr. Ware's at Tottenham, in Mr. Barr's grounds at Tooting, and also at Kew, and are now better able to speak of its merits. When seen in quantity in bright sunshine with its starry, white blossoms fully open, it has a pretty appearance, and then the vivid purple on the outside of the petals is not seen, which detracts so much from its beauty. The large umbels of slender-stalked flowers, too, are very graceful, and admirably adapted for use in a cut state, a condition in which they last a considerable time in perfection. As it may be freely raised from seeds, and the seedlings flower the second year, no doubt it will soon become widely distributed.

Specimen Fuchsias in Six Months.—One of the finest examples of culture in the way of Fuchsias which we have ever seen we saw the other day in Messrs. Henderson's nursery at Pine-apple Place. The plants, which are now in 6-in. pots, are the produce of cuttings struck in February last, potted on in good loamy soil, and subjected to the treatment which Fuchsias generally receive, except that they have had a dressing of Clay's Manure, which is stated to be very efficacious in stimulating the growth of plants in pots, especially such as are soft-wooded. The Fuchsias in question are 3 ft. high and as much through, remarkably strong and gracefully branching, and last, but not least, loaded with blossoms.—S.

The Late Thunderstorm.—We learn from various sources that the unusually severe storm on Saturday night last did much damage to glass structures, especially at Twickenham and its neighbourhood. At Kew the houses were much shattered by the hail; indeed it is estimated that as many as 25,000 panes of glass have been broken. The occupiers of small gardens for trade purposes, which abound in the adjoining districts, have also suffered heavy losses through glass breakage, and we hear that subscriptions are being raised to aid in repairing the damage.

THE number of persons who paid for admission to the Royal Horticultural Society's gardens, South Kensington, on Bank Holiday, August 4, was 11,342 at 2d. = £94 10s. 4d.

Rose Celeste.—This old-fashioned Rose is blooming well with me this year notwithstanding the unfavourable weather we have had. It is rosy pink in colour, and perhaps the most beautiful of all Roses in the bud state.—T. WILLIAMS, *Ormskirk*.

Hampton Court Gardens upon an August Bank Holiday afford one of the most pleasing sights to be seen in a country where so many thousands of people are perforce debarred by their vocation and place of residence from often enjoying the pleasures incidental to a rural or garden life. Tens of thousands of persons, of all ages and classes, the majority unmistakably of the true town type, wander about the broad walks and over the green sward, enjoying the trees and flowers in a way that shows how all pervading is the love of all that is sweet and beautiful in Nature. Hampton Court Gardens are peculiarly rich in trees, and not the least interesting feature is the lines of naturally-grown Yew trees, under the shade of which tired people love to rest. How thankful should the present generation be that these trees were spared from the Dutch shears of olden days. The green sward is in luxuriant condition, and not injured in the least, although thousands of visitors walk over it as they please. In respect of freedom from restraint, Hampton Court Gardens are far before Kew. The bedding plants are, of course, just now a certain source of attraction, though in poor condition as regards bloom. From uninteresting scroll and carpet beds—containing the customary Golden Feather, *Alternanthera*, *Mentha*, *Echeveria*, and a few other plants repeated again and again—one turns with a feeling of relief to the masses of *Lilium candidum*, the charming effects produced by the elegant *Lathyrus grandiflorus* as it runs over dwarf shrubs, and similar combinations. If the whole system of flower-beds were swept away, and the borders filled with grand collections of hardy plants, the gardens would gain greatly by the change.—A. D.

PLATE CXCII.

A GROUP OF NEW CLEMATISES.

Drawn by CONSTANCE PIERREFONT.

From the time when Messrs. Jackman & Son, of Woking, gave to English gardens *Clematis Jackmani* and *C. rubro-violacea*, raised in 1862, down to the present, a constant succession of new varieties has been kept up. Almost every year new forms bearing flowers large in size, perfect in outline, and striking in colour are produced. Clematises are divided into several divisions. Probably they are capable of being grouped into two sections—winter and spring bloomers and summer and autumn bloomers. There is a very great difference between these two, and just because that fact was not sufficiently understood, some who have attempted to cultivate them have failed. Strong-growing types like the well-known *C. Jackmani*, *C. rubella*, *C. magnifica*, and others flower from the growth put forth during the spring and summer, and need to be pruned back rather severely in winter, else there is a natural tendency for the plants to flower farther and farther away from the base as the strongest shoots are put forth from the tips of the old wood of the previous year. What is known as the *C. lanuginosa* type, under which heading are included many very fine and beautiful varieties of great decorative value, flower on short lateral summer shoots, which are not of such a gross character as those of *C. Jackmani* and others, and do not require such hard pruning. The cultivator in training these plants must have regard to the accommodation of the house, wall, or trellis on which he wishes to operate, and the nearer to the ground that he requires to have flowers the greater the necessity for pruning close. The other section is known as the *C. patens* type, *C. patens* being also known in gardens as *C. azurea grandiflora*. Under this heading we get quite a large group of beautiful, free-flowering varieties that produce their flowers much earlier than the varieties of the *C. Jackmani* type, because they flower from buds formed on the old or ripened wood; therefore to cut back the old wood in the case of the varieties of the *C. patens* group as one would that of the *C. Jackmani* type would be to risk the crop of flowers in the following spring. The long shoots that are put forth this summer should be preserved, and the old decayed wood which furnished flowers in May and June only cut away. Some nurserymen mix up these Clematises in their catalogues in a rather haphazard fashion, and purchasers buy without being made aware of the distinction between spring bloomers and summer bloomers, and therefore fail in many instances to get flowers.

The three fine varieties represented in the annexed illustration were raised by Messrs. Jackman & Son, of Woking. Fair Rosamond and Mrs. G. Jackman belong to the *patens* or spring-flowering section; the former has well-formed, blush-white flowers, having indistinct wine-red bars to each petal; the latter is a quite new variety, having large pure white eight-petalled flowers, and pale straw-coloured stamens. They are admirable varieties for pot culture. Robert Hanbury belongs to the *C. lanuginosa* section, and is remarkable for its bold, flat, well-formed flowers, and its soft satiny tint of colouring, which gives the blossoms a peculiarly refined appearance; the colour is a bluish-lilac, flushed at the edges with red, and having the bar slightly tinted with red. It is a comparatively new variety.

The Clematis has been described as a "gross feeder," and in all its stages and modes of growth a deep, rich soil is indispensable. The stock on which the Clematis is grafted is a vigorous grower, and puts forth a large mass of thick, fleshy roots, which not only need to be well sustained by means of rich soil, but also by an abundance of water in dry weather. In spring and summer good mulchings with strong manure should be given, and when the plants approach full bloom, occasional soakings with liquid manure, or dressings of some good patent manure, should also be given. In autumn some rich manure should be forked in about the roots, and some scattered on the surface about the plants, to be washed into the soil by means of the autumn and winter rains.

One very excellent mode of cultivating the Clematis in pots, to flower in May and June. Those who have seen the beautifully grown and flowered specimens which Messrs. Jackman and others are in the habit of showing at the horticultural exhibitions held in London in May and June, cannot fail to have been struck with the adaptability of the Clematis as a pot plant. The spring-flowering sorts are most suitable for this purpose. In the pages of "The Clematis as a Garden Flower" it is recommended that the plants be grown in 10-in. or 12-in. pots, in a rich, loamy soil. In pots of this size the plants should cover sufficiently cylindrical trellises of about 2 ft. high, and 1 ft. 6 in. across. They flower from the well-ripened wood of the previous year's formation, and hence a supply of this wood must be kept up annually. By encouraging a free growth after the flowering season is past, these plants can be forced into bloom by



A GROUP OF NEW CLEMATIS.

placing them in a genial warmth when growth sets in, and they may also be retarded by subjecting them to cold treatment. They should be repotted annually in a rich soil.

Well-established plants in the open air will, if carefully attended to, cover a great space. The budding shoots need to be carefully trained and tied in, placing them as widely apart as possible, as successional shoots and lateral ones will fill up the intervening spaces. If the shoots be not trained in this way they become matted together and are driven in one direction by the wind. There is another great advantage in training them as directed—the larger the space filled by the shoots the better do the plants display their heads of bloom.

A selection of a few leading varieties should include the following of the spring-flowering type:—Albert Victor, Lady Londesborough, Lord Londesborough, Miss Bateman, patens, Sir Garnet Wolseley, Standishi, Stella, The Queen, and Vesta. Those who are fond of double varieties—and they are of great value as conservatory plants for training against pillars and trellises—will find Countess of Lovelace, Fortune, John Gould Veitch, and Louise Lemoine well worthy of culture. Of the Lanuginosa type, Aureliana, Gem, Henryi, lanuginosa nivea, Marie Lefebvre, Morikata Oke, Otto Frebel, Symeiana, and William Kennett should be selected; these are perhaps of a rather more tender character than any others, and should therefore have, when planted out-of-doors, open, warm situations, and a well-drained subsoil. Of the grand summer-blooming varieties, some of the most useful will be found to be Alexandra, Jackmani, Lady Bovill, Mrs. James Bateman, Prince of Wales, Rubella, Star of India, Thomas Moore, Tunbridgensis, Viticella rubra grandiflora (small-flowered, but very distinct and attractive in colour), and Velutina purpurea.

R. D.

GARDENING FOR THE WEEK.

Flower Garden.

Auriculas.—At this season, when all re-potting must be completed as speedily as possible, to those intending to add to their stock either by purchase or exchange, a few words on packing may be useful. The best way is to pack the pots in which the plants are growing in a round basket in an upright position, and hold them in their places by strong twine laced across the basket. Stout sticks should then be inserted in the rim of the basket, and tied firmly together at the top, and over the sticks a mat should be tightly sewn. I have received plants from amateurs badly packed, and I have heard others make the same complaint. In the case of those who have but little experience, the best way to pack is to turn the plants out of their pots, reduce the balls of earth very considerably, and wrap them round with a piece of paper, tying all firmly with matting. The plants can then be packed closely together in dry hay or Moss. There is no danger of any injury if they are packed rather firmly, but if packed loosely, the chances are that many will be injured in transit.

Carnations and Picotees.—The information which I have been able to glean as to the condition of these plants is somewhat unfavourable. One grower from the northern district of Yorkshire writes to say that he will have a number of flowers in by the 12th of August on plants that have been forced under glass, but that his general collection will not be in bloom until September, and finally that he will not be able to put down so many layers as he did last year by 1000. This I can quite believe, as our own collection, under more favourable circumstances, is nearly as much behind. Notwithstanding that the special exhibition of these plants has been delayed for three weeks, the flowers will not be at their best by the 12th of August. Some fancy that growers who have the convenience of forcing houses obtain a considerable advantage over those who have no such accommodation; but I never use artificial heat to get the flowers in time. It was tried for one day only this year, but I was afraid the blooms produced would be out of character, and so gave up the experiment. If they are placed in a greenhouse, the lights may be kept closer than usual, but I never, even on cold nights, shut the house up entirely. Pay attention to watering as the plants seem to require it.

Hollyhocks.—Where these stately plants have made good growth, they will speedily repay the cultivator for any pains which he may have taken to bring them up to the highest standard. It is some years since we saw an exhibition of Hollyhocks in London, but let us hope that some means may be adopted to have one of these, together with Dahlias, Gladioli, and other autumn flowers. A good exhibition of Roses can usually be had in September; Verbenas, too, come in then and create variety, and so do Phloxes, Pentstemons, and other cut hardy herbaceous flowers. Attention must still be paid to stopping the side growths and to putting in such eyes as have leaf buds.

Pinks.—Beds of these are still gay even now, which is six weeks after their usual time of flowering. There is very little increase from side growths this year, and therefore it will be necessary for us to save all our old plants. Sometimes these do quite as well as pipings, so far as a good display is concerned; but they would not yield such large flowers for purposes of exhibition, although the lacing from old plants is generally good. Seedlings should be pricked out into good soil, and be encouraged to make good growth, so that they may be planted out into their blooming quarters next month.

Pansies.—These are still producing good blooms, and it will soon be necessary to put in cuttings of them. Indeed, it is quite time they were put in if it is intended that the plants are to flower early in pots. The easiest way is to take the very smallest growths that come up from the base of the plants; thick, succulent growths, with hollow stems, are useless for cuttings. Pansies strike best under handlights in a shady place, in a compost of equal parts leaf-mould, fine loam, and sharp sand; keep the lights rather close and shade from the sun until roots are formed. If there is any green fly on the growths dip them in soapy water before inserting them.—J. DOUGLAS.

Stove.

Celosias are amongst the most useful annual decorative plants grown, and at no season do they come in so serviceable as through the late autumn months; the latest sowings will now have made some progress, and attention must be paid as to having sufficient pot-room, as they, in common with all quick-growing plants, if allowed to remain, even for a short time, deficient in this respect, can never afterwards be set to rights. They are naturally disposed to grow higher than often required, to counteract which they should from the first be kept as near the light as they will admit of. Use the syringe regularly to the undersides of the leaves to keep down red spider, to which they are subject.

Table Plants.—Where these are required, there needs to be a continuous supply of young stock coming on, or they soon get too large, and when so used they are very objectionable. Tastes differ somewhat as to the different plants used, but it is generally admitted that the spare-growing, lightest, most elegant plants are the most suitable, amongst which may be reckoned some of the Palms, of which *Chamedorea graminifolia*, *Cocos Weddelliana*, *C. plumosa*, and *Geonoma gracilis* are the best; add to these, *Aralia Veitchi*, *reticulata*, and *gracillima*; *Croton angustifolium*, confined to a single shoot; the narrow-leaved *Dracenas*, such as *nigro-rubra*, and several of the hybrids of a like character; *Pandanus elegantissimus*, *P. Veitchi*, and the variegated *P. javanicus*; *Cyperus alternifolius* and its variegated form; *Jacaranda mimosaefolia*; *Reidia glaucescens*; and *Terminalia elegans*. These, and anything else employed for a like purpose, should in all cases be confined to a single stem; anything approaching a bushy habit renders them too heavy, and unfit for use. Such plants of the above as can be increased from cuttings, when they get too large, may be cut back, and after the shoots have broken and attained a considerable size, taken off and struck. Palms can be raised from seed or procured so as to keep up a supply from those who grow them for the purpose. With plants to be used in this way another matter of importance is never to get them in too large pots; 6 in. diameter is quite as big as admissible, or necessary, for, with the aid of a little manure water, they can be grown to a size even larger than adapted for the purpose, still retaining all their lower leaves fresh and healthy.

Orchids.

Except as regards the coolest division of Orchids it will have been necessary all along this season to use more fire-heat than usual, and should the weather continue of the same cold unseasonable character through the remaining portion of summer, it will be requisite to still further keep on with a considerable amount of artificial warmth, for without its means not only will the night temperature of even the intermediate or Cattleya house be too low, but the day heat as well, should cloudy weather and cool air, like we have hitherto experienced, continue. This is a matter requiring particular attention, as though growth in these plants can be kept on with fire-heat late in the season, yet it is anything but desirable that they should—with such exception as the naturally latest bloomers—not have completed their growth before the late short autumn days are upon us. Were it not that to save a little labour and a little extra expense, some growers resort to fixed shadings or the glass smeared with some composition it would be scarcely necessary to point out the more than usual mischief caused on a season like the present by these methods of excluding the sun, where up to this time we have not on the average had more than one day's collective sunshine in each week.

Cattleyas and Lælias.—These now, when their young roots have got well hold of the soil and attained more solidity, will bear

a little more water than earlier in the season. It is well to caution beginners that it is much better to err on the score of keeping them a little too dry than too wet at the root; and with the absence that we have so far had of the sun's drying influence, it is well to use some less atmospheric moisture, unless comparatively more air is admitted, with additional fire-heat to allow of this without the temperature getting too low. Late spring-blooming Cattleyas, such as the *Aclandiae* section, the different forms of *C. guttata* and *bicolor*, with the still later *C. intermedia* forms, of which *C. Harrisoni* or *violacea* may be looked upon as the latest, should have their growth pushed on as soon as the flowering is over. May I here say a word in favour of some of these fine old species, which, in the rage after new fashionable Orchids, are by many neglected, and things of a far less decorative value or general usefulness grown in their stead. I have seen some of the different forms of *C. intermedia*, when well managed, with the large size they will attain and profusion of flowers they bear, as also the length of time they will last, amongst the most serviceable and effective plants in the whole family of Orchids, and for cutting purposes they are far more suitable than the larger flowered kinds; the darkest form generally known under the name of *C. violacea*, if the flowers are cut whilst young, will last in water for three weeks.

Miltonias again may with truth be classed amongst neglected Orchids that are really worth cultivating. The different forms of *M. spectabilis*, growing as they do to a considerable size in little time, and producing proportionately large beautiful coloured flowers, that last either on the plant or in a cut state for a long time, in addition to their habit of blooming late in the summer, when comparatively few Orchids are in, render them of especial value. One objection raised against this, the thin-leaved section of *Miltonias*, is that they often have a yellow appearance in their leaves, from their inability to bear a full complement of light, much less sun; but I have always found them to keep their colour much better when placed near where the air is admitted, with the addition of large sheets of tissue paper laid on the plants during the day when the weather was bright. With these and a few others that will not bear as much sun as the general stock, I have found this much better than over-heavily shading the whole. *M. Moreliana*, the best form of which has no equal in its respective colour amongst Orchids, should be in even the most select collections; it requires treatment in every way like the others.

Anguloas and Lycastes.—*A. Ruckeri*, *A. Clowesi*, *A. eburnea*, and *A. virginalis* do much the best with an intermediate temperature at the coolest end of the house, their pseudo-bulbs under such conditions attaining a larger size, and the plants being able to produce a proportionately greater number of flowers than when grown warmer. They will now be in the full season of their growth, and should be moderately supplied with water at the roots. The same applies to *Lycastes*, of which *L. Skinneri*, in its many distinct and beautiful varieties, is one of the best long-flowering plants grown.

Oncidiums.—The different species of these that succeed in an intermediate house, such as the varieties of *O. barbatum*, *O. Barkeri*, the many forms of *O. crispum*, *O. sarcodeum*, *O. Papilio*, and the majority of others that do well with similar treatment, will now also be in the height of their growth. Most of these plants have stout leaves, and will bear more exposure to full light than some things, and I have always found the best position that could be afforded them in the house, resulted in the largest bulbs and greatest amount of bloom. Most *Oncids* will bear when growing more water at the roots than the soft tender-rooted kinds.

Cool Orchids.—The family of *Odontoglossums* and *Masdevallias* are the representatives most worthy of especial consideration in the matter of temperature, but unless where there are a number of houses devoted to Orchids, so as to accommodate those that require different treatment in this respect, it becomes a necessity to grow a good many other kinds with them, some of which are benefited by a few degrees more heat than the plants named like; yet no harm will be done in a compromise of this sort, provided treatment is given that will compensate for this. *Masdevallias* and *Odontoglossums* in common with other Orchids will not suffer through being subjected to a little more heat than they absolutely need, if accompanying it they are grown nearer the glass with a little extra air, as a matter of course using somewhat more atmospheric moisture when the weather is hot and the external air admitted is comparatively dry.

Epidendrum vitellinum and **Mesospinidium vulcanicum** are two of the most desirable and distinct-coloured Orchids grown. Both do much better in the cool division than when kept warmer. If placed at the warmest end of the *Odontoglossum* house they will be found to not only thrive but flower profusely. When these plants are grown in sufficient numbers so as to admit, when in bloom, of being dispersed about amongst the *Odontoglossums* and *Masdevallias*, an effect of colour is produced which is not

equalled by a combination of any other flowering plants that I recollect.

East Indian House.—There will be comparatively few plants in bloom here, but amongst those that will flower from this time through the autumn will be *Aerides suavisissimum*, the fine and scarce *A. quinquevulnerum*, with a few *Vandas* of the tricolor and *suavis* section, and *V. cœrulea* later on, as well as other species that from time to time push their flowers later than the usual season. A little care will be required in the use of the syringe, to see that advancing spikes of the above do not get too wet.

Cypripediums.—Most of these that require considerable heat will now be in full growth, including the different forms of *C. caudatum*, *C. hirsutissimum*, *C. lævigatum*, *C. Lowi*, *C. Stonei*, with other kindred species, and the hybrid sorts that need a like temperature. These plants also do better with more light than they often get; their foliage collectively is little susceptible of injury from a moderate amount of sun, and though under such a course of treatment the leaves do not usually get quite so large or long as when more darkened, yet the general condition, and the amount of flower which they will produce, will be more satisfactory. They like plenty of water when growing, and will bear it applying freely when managed as here advised.

Insects.—The maximum temperature at this time required invariably brings with it an increase in insect pests, which will now be troublesome, more or less, as the collection is comparatively clean or otherwise, and in no department of gardening is a thoroughly cleanly course of management, such as is calculated to keep the different insects that prey upon the plants down to the lowest possible point, more conducive to a real economy of labour; where, on the other hand, scale and the most injurious little yellow thrips are not got well under, they cause a never-ending tax on the labour, the plants not thriving as they ought. Far better only grow half the number, if there is not enough time to keep the whole in a satisfactory state as regards this most important as well as labour-absorbing part of the care they need. Respecting scale, its extermination is simply a matter of time and perseverance, as by sufficient attention it may be altogether got rid of. Where yellow thrips exist in quantity, especially among thin-leaved Orchids, such as the greater portion of *Odontoglossums*, it requires time and a determination to get them under, otherwise they do irreparable harm to the young, unfolding leaves, particularly at this season. Species like *O. vexillarium* are most injured by it. Continued sponging and washing are requisite, for this insect is difficult to kill with Tobacco smoke, and this section of Orchids have a great dislike to it.

Ferns.

Where there is a house devoted to these plants, or where they have to be grown along with others, there should always be provision made for keeping up a sufficient number of the kinds most useful for decorative purposes in a small state, by annually potting off a number of the seedlings of those that usually come up from self-sown spores, and by sowing the spores of such others alike suitable for use in this way as need to be so raised. The different forms of *Pteris serrulata*, both crested and plain leaved, are amongst the most hardy and useful plants that can be grown for standing about in greenhouses, intermediate houses, stoves, conservatories, or rooms. So accommodating are they that they will succeed almost anywhere. *Adiantum cuneatum* is also one of the best, doing well with either a medium amount of heat or in a cool house, and lasting in a presentably fresh condition for some months in ordinary living rooms. *A. formosum* and *A. hispidum* will both succeed for a like purpose. *Davallia bullata*, *D. Nova-Zelandiae*, *D. canariensis*, *Nephrolepis exaltata*, and *Pteris cretica* are all extremely useful for using either amongst flowering plants or in any place where elegant green-leaved subjects are wanted. There are but few private places where the stock of the above might not with advantage be increased. All can be raised from spores or by division. The *Davallias* can be propagated by division of the rhizomes when the plants are at rest. I may here observe that all these, as well as other Ferns, can be kept in a vigorous healthy state in very small pots, provided they are regularly supplied through the growing season with weak manure water; by the use of this, even when the roots are so confined that the growth would otherwise be both weak and yellow in colour, the fronds will come sufficiently strong, possessing the desirable deep shade of green. The hardy *Scolopendrium*s are excellent plants for employing in like manner, and their distinct foliage is an advantage. Such species as *Lomaria gibba* and *L. cycadiifolia* should be annually raised from spores, as they are most serviceable in a comparatively small state. To be successful with the latter variety the fertile fronds should be taken from the plant as soon as ever there is an indication in the coverings of the spore-vessels to rise, otherwise the spores will fall and be lost. The fertile fronds should be broken up into small pieces and scattered over pots or pans filled

with a mixture of peat, grit-stone, charcoal, or crocks, with a liberal addition of sand, kept moist, and a sheet of glass laid on the top, placed away from the sun in a little warmth, where they will soon vegetate. Ferns, such as most of the Tree species, that are inclined to get too large in the head for the places they occupy, may, now that their summer crop of young fronds is fully developed, have a considerable number of the old ones cut away. They will also bear washing with Tobacco water to destroy thrips. Should these exist, this is the most effectual method of killing both these insects and their eggs. Where there is scale on Ferns, if it is not kept in check, it becomes an intolerable nuisance, as it spreads with great rapidity to all that stand in contact with, or are overhung by, such as are affected with it.

T. BAINES.

Indoor Fruit.

Pines.—Smooth Cayennes, Charlotte Rothschild, and other winter-fruiting Pines that have done flowering, should now be encouraged to make free growth by means of frequent supplies of manure water. If the pots are not plunged too deeply the soil will dry more quickly, and thereby permit fresh stimulants to be administered more frequently than would otherwise be the case, without danger of the soil getting soddened. Still ventilate freely, but shut up early, enclosing plenty of atmospheric humidity. Syringe the plants overhead on the hottest days, but at other times damp the beds, pots, and wall surfaces only. Any not out of flower must be carefully guarded from moisture lodging on the blossoms. Similar treatment must be given to Queens that are intended to show fruit from the new year onwards, and which ought to have completed their growth by, at the latest, the middle of September, when they should be kept drier, both as regards moisture at top and bottom, and a minimum amount of heat, compatible with the maintenance of vigorous health, should also be maintained. Ripening fruit must have plenty of air, and though it is desirable that the soil should now be somewhat drier than for plants in free growth, it should never be allowed to get quite dry, for it is a mistake to suppose that Pines can be roasted into flavour. A notion is prevalent that entirely withholding water from the first indication of colouring improves the flavour; but such is by no means the case, rather the reverse, as those who are sceptical as to this matter may soon learn by making a trial of the two plans. Keep succession stock in free growth for the present, and if a general cleansing and overhauling of the pits and houses has not yet been done, advantage should be taken of fine weather for performing these operations.

Vines.—It will still be necessary to carefully guard against scalding late Grapes that have not yet passed that critical juncture. Give fire-heat at night, and keep the ventilators an inch or two open in order to prevent condensation of moisture, and this, coupled with free day ventilation, will be found to be a sure preventive of the disease. Houses containing ripe fruit should be kept as cool as possible, and if the weather be sunny a slight shade would tend to preserve the colour of the fruit for a longer period. Check any disposition which early Vines may still show towards making fresh growth by persistent pinching, and see to the renovation of the borders as early as circumstances will permit, in order that the roots may get established in the new soil before the close of the growing season. Pot Vines that have completed their growth may be afforded more liberal supplies of air than hitherto, and the fullest exposure to light, but there must be no withholding of water at the roots under the delusion that it tends to assist maturity; in one respect it does, but it is premature maturity, and necessarily hinders the full development of the buds.

Peaches and Nectarines.—Trees from which the crop has been gathered should be regularly syringed, in order to maintain cleanliness of foliage, and if fly be troublesome fumigate with Tobacco paper. Do not hesitate to cut away any straggling shoots that are likely to prove injurious through overlapping others, and which hinder the full action of light and air on the fruiting wood of next season. Keep inside borders well supplied with water, and the trees that are swelling off fruit should have manure water. Soil should be got in readiness for making new borders or renovating old ones, as transplanting and top-dressing should be done as soon as ever there are indications of maturity of growth by the falling of the leaf; there is then no perceptible check as regards fruiting the following season.

Strawberries.—All should ere this be in their fruiting pots, and be growing rapidly. Keep the runners constantly pinched off and never allow them to suffer even slightly in the matter of watering or to become drawn and weakly from standing too closely together. They should be kept free from weeds by pulling them out as soon as perceived, as under no circumstances should the surface soil be broken up; such a proceeding should ever be looked upon as wanton destruction of the best roots of the plants. If, as was recommended in a former calendar, a small proportion of bone manure

was incorporated with the soil for potting, no manure water will be required, as the aim should be the obtaining of sturdy, fruitful crowns rather than an immense profusion of leaves, accompanied as they would be with large sappy crowns difficult to ripen.—W. W.

Kitchen Garden.

When a choice of two evils occurs, it is obviously the best policy to select that which appears to be the less of the two; and, as the Potato murrain has now set in, by far the lesser evil will be to at once dig up all kinds that are anything like full sized: even though some may go bad afterwards, it will be better than leaving them in the ground to be entirely destroyed, as must inevitably be the case this extraordinary season. Whatever may be the predisposing cause of this scourge, it is certain that thundery weather favours its development, for since the severe tempest that occurred on the evening of the 1st and morning of the 2nd inst., the haulm of many kinds has died off alarmingly quick. When the Potatoes are harvested, there will be ample space for all kinds of winter Greens. The planting of Savoys, Kales, Coleworts, and late Broccoli should be completed forthwith, and earlier plantations will now be fit to earth up, a practice at once beneficial both as a protection against wind-waving and as a means of aerating the soil. A last sowing of Cabbage and Cauliflower may now be made on a warm sheltered aspect to stand the winter. These will make good plants for putting out in spring to succeed the late autumn plantings, the produce of seed sown a fortnight or so ago. The sowing of Winter Spinach should not be longer delayed; a deep, moderately rich soil, and a dry situation suit it best, and the plants should not be nearer together than 1 ft. each way. We prefer the rows 2 ft. apart, in order that the ground may be the more conveniently hoed and the produce gathered. Onions of the Tripoli and Giant Rocca kinds should at once be sown rather thickly in drills, to be planted out early in the new year. Of course this plan is practised with a view to the utilisation of ground, there being no valid reason against sowing them sufficiently thin, and where they are to mature, except the question of space, which in most gardens is now fully occupied with winter and late maturing autumn crops; such concentration of space is therefore necessary. Winter Lettuces (Bath Cos) Endive, and Turnips, should all now be sown in quantities more or less according to circumstances. Lettuce and Endive may still be planted out with fair prospects of success. If, as often happens, ground for Celery could not be had in sufficient quantity at the proper time, any planted now will come in admirably for soups, and will save the general stock. It should be planted out thickly, and, like Lettuces, that is all the culture which it will require seeing that it is intended for soups only. Earth up the earliest planted Celery; mulch and stake late Peas; cut Globe Artichokes as soon as they are fit for use—even if not required they had better be cut, and when done bearing, all the old stems should be removed and the ground loosened with forks or hoes. Remove also the seed stems from Seakale, and thin out the crowns if crowded, in order to favour early ripening. Tomatoes are late, but with a continuation of the present favourable weather, they will yet fruit abundantly, and should be encouraged by constantly pinching and training out the shoots, aiming rather at early maturity of a little fruit, than a quantity which perhaps may fail to ripen at a later period.—W. W.

Extracts from my Diary—August 11 to 16.

FLOWERS.—Putting in cuttings of *Alyssum variegatum* for stock. Staking and tying *Chrysanthemums*. Putting in cuttings of *Verbenas* for stock. Stopping *Carnations* in pits. Re-arranging plant houses. Propagating *Pelargoniums* in boxes. Placing *Chrysanthemums* in a sunny position. Putting *Primulas* into their flowering pots out of 3-in. ones.

FRUIT.—Nailing Vines to walls outside. Brushing off Peach leaves in earliest house, in order to ensure the ripening of the wood. Going over Grapes and taking out all shanked berries. Gathering all ripe Apricots. Trenching ground for Strawberries. Netting Plums, in order to preserve them from birds. Planting out bed of Strawberries. Gathering Juneating Apples for dessert. Pruning shoots of Pears on walls. Potting Strawberries for forcing, and layering a few more for planting out.

VEGETABLES.—Sowing Turnips for autumn use between Gooseberries. Sowing Bath Cos Lettuces and Enfield Market Cabbages. Planting Cattell's Eclipse Broccoli. Sowing more Little Pixie, Carter's Early Heartwell, and Daniel's Defiance Cabbages; also Flat Italian and New Giant Rocca Onions. Tying and stopping Cucumbers. Sowing Incomparable and All Heart Cabbages. Thinning out Parsley and Lettuces. Sowing Mustard and Cress; also Hammer-smith Hardy Green and Wyatt's Green Curled Lettuces, and Chou de Milan Cabbages for succession. Pulling up Broad Beans and hoeing and cleaning the ground ready for next crop. Tying and stopping Tomatoes in houses. Sowing winter Cucumbers (Telegraph, Hedsor Prolific, and a cross between Montrose and Lord Kenyon's

Freebearer). Planting Snow's Winter White Broccoli after Potatoes. Digging ground for winter Spinach. Planting ground after Broad Beans with Garnishing Kale and Little Pixie Savoys. Gathering all Scarlet Runners ready for use. Hoeing ground between last-planted Cabbages. Removing superfluous wood from Tomatoes on outside walls.—R. G., *Burghley*.

PROPAGATING.

White Lapagerias.—Last year I stated that in order to secure strong growths annually and plenty of flowers, it would probably be found the best plan to propagate Lapagerias as pot Vines are increased, and in this opinion I am more convinced than ever. It is well known that old plants of Lapageria extend but slowly at the extremities of their shoots after these attain a certain height. The strongest growths come from the root or near it, and these always make most growth during the season. But it is not necessary to have roots to begin with, as young shoots layered their whole length produce shoots from each joint just as strong as those from roots, and at the same time make roots of proportionate strength and size. What can be done with the Lapageria in this way must be seen to be believed. The plan is considered to be a secret by some, and there is one extensive propagator of the Lapageria who closes his houses against inspection; but his plan is no secret. At the Handsworth Nurseries the white Lapageria is propagated for its flowers as well as for stock on a more extensive scale perhaps than anywhere else, and the propagating houses are open to all who choose to go and see for themselves. I saw there during the present week about 1000 plants of Lapageria alba that were not in existence at this time last year, and which are now not much more than six or eight months old. These plants were layered from nine older plants last autumn, and their shoots now average 6 ft. or 7 ft. each, and plenty range from that to 12 ft. I measured them with my foot rule. They will all grow some feet yet, and are now showing flowers. By October there will hardly be less than 10,000 ft. of young growths—all from a few plants, and they are there to be seen, and all in magnificent health. A stock nearly equal to this was cleared out last year; some idea may therefore be entertained as to the demand for this fine climber. The enormous rooting power of the Lapageria may be judged from the fact that a number of plants reserved for flowering purposes from last year's young stock are now in 20-in. pots, set like pot Vines along the front of a low house, and the shoots cover a roof 75 ft. long and 8 ft. high from end to end. Some of these plants have ten shoots or more, and many of the individual shoots are from 10 ft. to 14 ft. in length, and are growing and flowering.

J. S. W.

The Automatic Budder.—If this new implement will accomplish all that is claimed for it (p. 51), it will be a great acquisition to gardeners, but more particularly to nurserymen, to whom it will be worth about six men, according to Mr. Fish, who states that "exhaustive experiments" have proved that professional budders will be able to accomplish six times as much work by it as they would by the ordinary method. I can state from my own knowledge that the ordinary work of a professional Rose budder per day of 10½ hours is 600 buds, making and inserting them, a boy doing the tying, as would have to be done after the automatic budder also, I apprehend. Roses are the most awkward subjects to bud, but of fruit trees and shrubs a man can put in 1000 buds per day. In one nursery with which I am well acquainted, where from 70,000 upwards of Roses are budded every summer, besides a proportionate quantity of other things, the above figures represent every day's work for each man. It would appear, therefore, that the automatic budder will enable a man to put in 3600 Rose buds in a day and 6000 fruit-tree buds, or from about six to twelve buds per minute, without allowing for interruptions (?). Your correspondent says the description given in your pages "by no means exhausts, far less exaggerates, its merits." But particulars as to the actual work a man can accomplish by its use would give your readers a much better idea of its usefulness than anything else.—J. S. W.

The Orchis which you have figured and described in your last number as *O. purpurea* is *O. fusca*. With me it does not do as well in the garden as some of the other native species. *O. hircina* is again in fine bloom here, but nothing like as fine as last year, when the stalk was between 4 ft. and 5 ft. high.—H. HARPER-CREWE, *Drayton Beauchamp*. [According to Hooker's "British Flora," *O. fusca* is a synonym of *O. purpurea*.]

"The Parks and Gardens of Paris."—Messrs. Macmillan this week issue a cheaper edition of this book, published at the lower price of the first edition—18s.

THE INDOOR GARDEN.

POTTING ORCHIDS.

THE advice given by Mr. J. C. Snyers (p. 115) as to the desirability of potting Orchids before the young roots push forth, is worth printing in "letters of gold," and young gardeners and amateur Orchid growers especially would do well to bear it in mind. It takes all the skill of a very experienced plantsman to pot an Orchid when its young roots are protruding without serious injury being the result. Even if the tender root-points, with their gelatinous tissues, are not directly, *i.e.*, mechanically, injured by abrasures, they are extremely likely to rot off if subjected to a covering of fresh compost. That the thick roots of many Orchids possess a wonderful and little understood power of discrimination in their earliest stages of growth is well known to close observers; they readily pierce the compost if it be sweet and porous and otherwise suitable; but they often altogether avoid it if, as not unfrequently happens, it is stagnant, too close, or otherwise unsuitable. Light, heat, and moisture alike influence the behaviour of root-growth, however, apart from the abstract question of suitable compost; and because we cannot exactly imitate Nature in these things, it follows that we cannot feed our Orchids by aerial means alone, as often happens in tropical lands. In the re-potting of Orchids it frequently happens that the roots cling so tenaciously to the pot that they become broken in shifting. Mr. John Bain, who years ago grew many rare plants to great perfection in the College Botanic Garden, Dublin, found that by placing the plants in a cool temperature and dry atmosphere for a few days, and withholding water at the same time (cautiously, of course), the roots relaxed their grasp of the pot, and could then be re-potted with but little damage. Looking at the rare *Phalænopsis Esmeralda* in Messrs. Veitch's collection a week or two ago, I found its root-growth to be highly instructive. Its newly-formed and growing roots looked as healthy as possible, and were actually pointing upwards rather than down towards the compost—in a word, the genial moisture-laden atmosphere of the house in which it is growing is more enticing to them than the compost; and precisely the same thing may be noticed in the case of other species of *Phalænopsis*, *Aerides*, *Vandas*, *Angreecums*, &c. To confine the roots of such plants in a mass of cold, wet compost, where they become blanched and etiolated, is but a very poor substitute for the genial life-giving atmosphere which attracts the roots, and in which they revel in all their plump and vigorous greenness. In Orchid growing the state of the atmosphere is ten times more important than any kind of compost whatever can possibly be; although it must, in most cases, be used for mechanical as well as chemical reasons, yet in the best grown collections we find a minimum of potting material is employed and a maximum of plant-growth is thereby attained. Too much heat and deficient atmospheric feeding has killed thousands of Orchids and other plants also, and the same may be said of large pots of compost, in which hundreds of Orchids are starved or suffocated year after year.

B.

Azolla pinnata.—An instance of rapid growth is well exemplified in this pretty little aquatic, which when received at Kew last autumn was not sufficient, as regards quantity, to cover 1 sq. in., while now it is spread over the surface of some of the tanks, which are several square yards in size; in fact, it appears to be quite a nuisance in the old Lily-house tanks, where it grows most luxuriantly and forms a dense green carpet similar to that of the common Duckweed, but much prettier in appearance, inasmuch as it looks like some of the small-growing *Selaginellas* floating on the surface of the water. It evidently thrives best on the surface of fluid mud, but it also succeeds satisfactorily in water of ordinary clearness and temperature. It is a capital subject for growing in indoor aquaria, and should be sought after for that purpose.—W. G.

Variegated Maples in Pots.—These beautiful fine-foliaged trees make very effective objects in pots or tubs for furnishing large conservatories in summer. We have some of the well-known *Acer Negundo variegatum* about 12 ft. high, and at this time of year their beautifully-marked foliage associates well with the ordinary summer occupants of conservatories; and I have no doubt that the newer varieties of Japanese Maples would be equally effective, as they have the advantage of being very easy plants to manage. Potted in good loam they would last several years, if well supplied with water, and a little liquid manure during the growing season. As soon as the foliage drops in autumn they might be plunged in leaves or tan in any sheltered spot, and remain until they were again required for decorative purposes. In fact, where decorations on a large scale are frequently in request, a surplus stock of such plants as these is ways valuable: as they are equally effective as the choicest

stove plants, and for forming backgrounds to large groups they often become available where, owing to the unsuitable position, one would hesitate to put valuable specimens.—J. GROOM.

THE BLACK AND GOLD WASP-COLOURED ONCID.

(ONCIDIUM CRÆSUS.)

GROWING only 1 in. or 2 in. in height, this is at the same time one of the most diminutive, as well as one of the most beautiful of Oncids. If rarity is any merit in a plant, then this one will for some have an additional attraction. Both pseudo-bulbs, leaves, and flowers are represented of the natural size in the annexed sketch, which we had an opportunity of making at St. John's Wood in April last, at which time a superb little specimen in the well-cared-for collection of Mr. Philbrick bore upwards of thirty fully expanded flowers. It was grown in a pan about 6 in. in diameter, and was much admired by all who saw it when exhibited at one of the Regent's Park exhibitions. The pseudo-bulbs are ovoid and slightly compressed, with indications of being fluted, and each bears a pair of bright green leaves. The flowers are borne two or three together on slender zig-zag spikes, and last long in perfection. The sepals and petals are nearly equal, varying in tint from greenish-umber to reddish-brown, with indications of darker nerves. The lip is of a brilliant golden-yellow (the wealth of the aureolin no doubt having suggested the specific name), which is further intensified by the purplish-black blotch on its disc; this in some forms takes the shape of a blood-coloured ring around the verrucose crest. Purchasers must bear in mind the fact that only when in bloom can this plant be distinguished from several other forms less desirable, such as *O. Janierense*, *O. oxycanthosmum*, and *O. Janierense superbum*, which pretty nearly approach *O. Cræsus* itself in beauty. *O. longipes*, the Lindleyan species introduced by the Messrs. Loddiges many years ago from Rio, is in all probability the original type of the dwarf-growing race to which *O. Cræsus* belongs; but it is in this last-named species that the wasp-like colours of yellow and black reach their maximum point of beauty. The true plant is said to be Brazilian, and is no doubt, like many other fine forms of well-known and even old species, very rare even in its native habitats. Collectors now in Brazil are sending over *O. curtum*, *O. dasytyle*, and others, but the tiny Oncid we now specially allude to, yet would appear to linger unseen and unwrested from its home in the trees on the lower slopes of the Organ Mountains. To say that a plant comes from Brazil or the Organ Mountains, however, is about as intelligible as it would be to tell a foreigner that *Cypripedium Calceolus* is found in England. We had thought of this little gem as unrepresented in plant portraiture, but there is a plate of it in the second series of the *Floral Magazine*, t. 40, and *O. longipes* is also represented at t. 5193 of the *Botanical Magazine*. All good authorities agree that it succeeds best in a small pot suspended near the light in a moderately warm and airy Cattleya house, and that it should be freely supplied with moisture at the root when growing. Although such a very small morsel, even when in its utmost luxuriance, the flower is very large in proportion to the stature of the plant, if compared with the largest flowered of all the Oncids, *O. macranthum*, *O. Marshallianum*, or *O. varicosum* Rogersi. The quaint little *O. Limminghi*, however, is much smaller in its habit of growth, and bears a flower as large, if not still larger; but in neatness of growth, comparative rarity, and beauty of brown and gold, there is no rival to wrest the palm from *O. Cræsus*. F. W. B.



The black and gold wasp-coloured Oncid (*Oncidium Cræsus*)

ing and flowering most freely in a cool house filled with Tea Roses and Azaleas during winter and summer. The first flowers on the old wood are, of course, late, just being at their best about the middle of July, and the flowers on the young wood, which was extending rapidly, were showing at every joint. The plant is in fine health, and is 25 ft. long, and covers a great part of the roof. It has grown from a small plant in its present quarters, and is not yet three years of age, and is growing in a brick pit 1 ft. deep in a compost of peat mulched on the surface with cow manure.—J. S. W.

CONSERVATORY CLIMBERS.

ENQUIRIES are so often made concerning climbers suitable for conservatories that a few remarks on those which we have at present growing and flowering freely may perhaps be acceptable to such as contemplate planting in similar structures. I may mention that during the late severe winter the temperature of our conservatory ranged from 40° to 50°, heat only just sufficient to exclude frost, as being planted principally with permanent plants such as Oranges, Camellias, Daturas, &c., nothing like a growing temperature is attempted during the winter months. The climbers are planted out in well-prepared borders under the stone side stages which support the pot plants that are from time to time introduced. Taking them at the present time the most striking and fragrant are two plants of

Rhynchospermum jasmynoides, that have clothed the pillars which support them from base to summit, as well as a considerable length of the drooping chains which we have festooned with creepers. Such treatment suits this lovely flowering plant much better than pot culture and formal training. Another excellent plant is *Tecoma* or *Bignonia jasmynoides*, the deep green foliage of which looks well at all times, and its flowers with their light edges and red throats remind one of those of a *Gloxinia*. *Jasminum azoricum* is at present covered with a cloud of delicate bloom, and *Tacsonia Van Volxemi* is an indispensable climber, the brilliant flowers of which wave with the slightest breath of air. Its rapid growth too, and fine foliage render this plant extremely useful for clothing a lofty roof. *Mandevilla suaveolens* is a good white-flowered climber, but unfortunately it is rather liable to be attacked by insect pests, which in such positions are difficult to exterminate. *Metrosideros floribunda*, which bears singular bottle-brush-like flowers of a brilliant description, looks well as a pillar plant. Banksian Roses, which under glass maintain their evergreen character, are also suitable for such positions, in which their dark shining foliage is very effective. Amongst Acacias some are well adapted for forming climbers; all of them succeed well under conservatory treatment, and they produce a fine display in spring. *Lapageria rosea* and *alba* are quite at home in a cool house, and flower profusely in autumn. The deciduous *Bignonia grandiflora* is also a fine autumn flowering climber, as are also some of the Clematises. We like the brilliant colours of *C. Jackmani* and similar varieties, and are gradually introducing them and blending them with the evergreen ones such as *C. indivisa lobata*; in fact, many of our brilliant-flowered deciduous climbers might be used in such a way as not to leave unsightly bare spots in the winter, when indoor effects are most appreciated. For covering bare spaces rapidly we use *Cobæa scandens* and its variegated form with good results, as in very lofty buildings vigorous growth is required in order to give them a furnished aspect, while choicer plants of slower growth are growing up to replace them.—J. GROOM, *Linton Park, Maidstone*.

Stephanotis floribunda in a Cool House.—A plant of this in the Handsworth Nurseries, grown for its flowers and to afford a stock, being a wonderful free-flowering variety, may be seen grow-

The Fringed-petalled Hibiscus (*H. schizopetala*).—One of the most remarkable plants now in flower in Messrs. Veitch & Son's nursery at Chelsea is this tropical Malvaceous plant, which is con-

sidered to be a variety of *H. Rosa-sinensis*, though, from its very distinct characters, together with its geographical source, it well merits specific distinction. It resembles *H. Rosa-sinensis* in its mode of growth, but the leaves are narrower and more deeply serrated. The flowers are 3 in. in diameter, borne on slender drooping stalks about 4 in. long, produced from the axils of the leaves on the upper portion of the branches. The colour of the petals varies from a rich deep crimson to a pale pink tinge, and they are deeply and elegantly fringed and reflexed, much in the same way as a Turk's-cap Lily. The golden-tipped stamens, with the protruding velvety styles, are arranged in a bottle-brush manner on the upper half of a slender tube from 1 in. to 2 in. long, thus giving the flower a singular appearance. It comes to us from Zamzibar, and we hope ere long to see it more commonly grown than at present.

ROSES.

THE BEST HARDY ROSES.*

WE have adopted the following means of determining the comparative merits of different varieties. Taking the five qualities required in the order of their importance, we assign the following number of points to each:—Colour, 24; form, 22; fragrance, 20; freedom of bloom, 18; vigour and healthfulness of growth, 16—making a total of 100 points. As will be seen from the table subjoined, we have no Rose which is quite perfect; our choicest sorts, excelling in some qualities, fall short in others. Where two or more varieties resemble one another, we have only retained the superior sort; thus Ferdinand de Lesseps and Maurice Bernardin are thrown out as being somewhat similar, but inferior, to Charles Lefebvre. This gives a list, therefore, of quite distinct sorts, those which are nearest alike being Alfred Colomb and Mme. Victor Verdier at the head, and they are sufficiently dissimilar to make both essential, even in a very limited collection:

Name of Rose.	Number of Points.	Total.
Alfred Colomb, crimson	24 22 19 15 13	92
Mme. Victor Verdier, crimson	24 22 19 14 11	90
John Hopper, carmine-rose	24 20 14 16 16	90
General Jacqueminot, velvety-crimson	24 16 17 17 10	90
Comtesse de Chabillant, pink	23 22 17 13 14	89
Abel Grand, glossy rose	23 20 15 10 15	89
Marie Baumann, carmine-crimson	24 22 18 14 10	88
Charles Lefebvre, deep crimson	24 21 16 14 13	88
François Michelin, carmine-rose	24 11 15 15 13	88
La France, silvery-rose	24 22 20 18 3	87
Marguerite de St. Amande, bright rose	24 20 12 16 15	87
Climbing Jules Margottin, carmine-pink	24 19 14 14 16	87
Duke of Edinburgh, bright crimson	24 17 15 15 15	86
Baronne Prévost, rose	23 14 17 16 16	86
Louis Van Houtte, maroon	24 21 20 14 6	85
Paul Neyron, rose	22 19 13 15 16	85
Anna de Diesbach, carmine	24 16 12 14 15	81
Mme. Boll, carmine-rose	24 21 12 8 15	80
Prince Camille de Rohan, dark crimson	24 18 14 12 10	78
Countess of Oxford, carmine-red	24 22 4 14 13	77
Caroline de Sansal, rosy-flesh	23 15 12 14 13	77
Mme. Alfred de Rougemont, white	20 16 14 18 9	77
Peach Blossom, pink	22 16 10 12 13	73
Coquette des Blancches, white	23 10 8 18 12	71
General Washington, reddish-crimson	20 18 4 17 8	67
Marquise de Castellane, carmine-red	24 19 2 9 10	64
Baroness Rothschild, silvery-pink	24 21 2 12 4	63
La Reine, rose	15 12 10 12 14	63
Etienne Levet, carmine-red	24 20 2 10 6	62
Mlle. Eugénie Verdier, silvery-rose	24 20 2 8 7	61

A list of this kind would not be complete without mention of some summer Roses. Though blossoming only once a year, some of them, notably the Mosses, are so beautiful as to be essential to a Rose garden of any size or pretensions. We name the following as the best:—For climbers—Bennett's Seedling, Baltimore Belle, the Queen of the Prairies. Among non-climbers, the most desirable are Persian Yellow, Mme. Hardy, Mme. Plantier, and the following Moss Roses: Crested, Common Moss, Comtesse de Murinais and Salet; the latter, though less beautiful than the others, blooms freely in autumn, and would be quite valuable for that quality alone.

ALFRED COLOMB, which heads the list with 92 points out of a possible 100, is less fragrant than La France, more coy of its blooms than Coquette des Blancches, and does not have the lusty vigour of growth possessed by Baronne Prévost, but for the five qualities no sort altogether equals it.

MADAME VICTOR VERDIER is a sister variety of nearly equal worth.

JOHN HOPPER, always steadfast and true, comes third. Victor Verdier bears him much resemblance in colour and general appearance, but has neither the fragrance nor vigour of constitution to be counted a rival.

GENERAL JACQUEMINOT, notwithstanding a lack of fulness and rotund form, is now one of our oldest, most generally known, and best Roses for general cultivation. Clad in his rich crimson livery, he is still prepared to lead the van.

COMTESSE DE CHABILLANT, possibly from the length of name, is a variety too much neglected and lost sight of. The flowers are not large, but most beautiful, and are models of symmetry and grace.

ABEL GRAND is another neglected, or at least not well-known, variety of the highest excellence, especially valuable in the fall of the year when compeers otherwise equally meritorious are devoid of even a semblance of bloom.

MARIE BAUMANN! How difficult to depict her charms; original and exquisite in all her features, she claims a choice position in every garden. There is no more beautiful variety than this in the entire list.

CHARLES LEFEBVRE is an improved Jacqueminot in form and possibly colour, though somewhat inferior in other qualities.

FRANÇOIS MICHELON, a comparatively new sort, is rapidly gaining favour. It is a seedling from La Reine, bearing some resemblance to that well-known sort, but decidedly superior in colour and form.

LA FRANCE is the sweetest of all Roses; compelled to choose one variety, this should be ours. It is not only the most fragrant, but, with the exception of those Hybrid Noisettes, Madame Alfred de Rougemont and Coquette des Blancches, will yield more flowers during the year than any other sort named. It flowers so profusely that its growth is checked, every eye sending forth a flower-shoot: it is, alas, not very hardy, being the most tender on the list; but though the tops are killed, it will start out again in the spring from the roots.

MARGUERITE DE ST. AMANDE is a worthy companion of Abel Grand, furnishing a general supply of autumn flowers.

CLIMBING JULES MARGOTTIN, besides being of more vigorous growth, seems, if anything, more beautiful than the old sort, from which it is a sport. It is well worth growing for its buds alone.

DUKE OF EDINBURGH is a bright-coloured Jacqueminot, which is saying all that is necessary.

BARONNE PRÉVOST, one of the best of the flat type, is a worthy companion of General Jacqueminot, and a model of vigour and health. It is the oldest variety on the list, having been sent out in 1842.

LOUIS VAN HOUTTE, like La France, is but half-hardy, and is also worthy of extra care. No other sort so nearly approaches La France in fragrance, and when planted in a bed together, the deep velvety maroon of the one contrasts most beautifully with the delicate silvery rose of the other.

PAUL NEYRON is the largest variety known, and although its size detracts from our notions of a refined Rose, it is nevertheless a noble sort for any garden.

ANNA DE DIESBACH, a true carmine, has its rivals of the same shade, but her pure, lovely colour has never yet been equalled by any of them.

MADAME BOLL is almost worth growing for its large, lustrous foliage, but the blooms correspond in size and quality, only are too seldom seen after the June blossoming is over.

PRINCE CAMILLE DE ROHAN is a superb, very dark sort, very well known.

COUNTRESS OF OXFORD, a splendid carmine-red, of the Victor Verdier type, is, like François Michelin, rapidly becoming popular, its chief defect being a want of fragrance, which it lacks in common with all the Victor Verdier race.

CAROLINE DE SANSAL is a well-known and justly popular sort.

MADAME ALFRED DE ROUGEMONT and COQUETTE DES BLANCHES are, all things considered, the best white perpetuals we have.

PEACH BLOSSOM, a comparatively new sort, seems to improve each year, and gives a new shade of colour that is very desirable.

GENERAL WASHINGTON, one of the most widely disseminated varieties, does not reach the maximum number of points in any quality. In colour it is somewhat grand, but generally it has somewhat of a faded appearance, being quickly affected by the sun, and seldom seen truly pure. The same may be said respecting form—sometimes superb, but generally with some defect, either a green centre or unsymmetrical. Of fragrance it is almost entirely devoid. It ranks very high as a free-bloomer, but, like La France, this is at the expense of growth.

MARQUISE DE CASTELLANE does not always open well, but gives many large carmine-rose blooms of globular shape that are truly superb.

BARONESS ROTHSCHILD has exquisite cup-shaped flowers, entirely distinct from all others. It is, unfortunately, of stubby, short-jointed growth, and can only be propagated by budding or grafting. This will always tend to make it somewhat scarce.

LA REINE is another well-known old Rose which we cannot yet afford to discard, though now surpassed by so many finer varieties.

* Abstract of a paper read before the Western New York Horticultural Society.

ETIENNE LEVET, somewhat resembling Countess of Oxford, is rapidly finding favour, and, had it but fragrance, would be assigned a higher position.

M^DLE. EUGENIE VERDIER, the last of the list, is certainly one of the most delicately beautiful coloured varieties we have, but here again the lack of fragrance deprives it of a higher position.

We have given the shade of colour in case any one should desire to select from this list, with reference to having but a few sorts quite distinct from each other in tint; but as already mentioned, Roses vary in colour as in form, and we may have two kinds, of precisely the same shade, yet strongly differing in every other respect, and therefore entirely distinct. HENRY B. ELLWANGER.

MR. BAKER'S ROSES.

In the very favourable notice of my Roses at Norwich by Mr. D. T. Fish (p. 82) I am asked to "reveal my Rose secrets." This I will most readily do, but as my blooms are simply the "legitimate outcome of careful culture," and not "nourished into size, moulded into form, and coloured perfectly by some specially rich food," I fear he may be disappointed at the meagreness of my revelations. In the first place, my blooms were not the produce of "dwarf maidens," but were all of them grown on cut-back plants (Manetti), most of which were five years old. It has long been my opinion—and every year's experience tends to strengthen it—that the blooms from cut-back plants are superior in every respect to those from maidens, and more especially so in finish and form. My Rose ground was very carefully prepared in the first place, being trenched to the depth of 2 ft., and made very much like a sandwich, with alternate layers of manure and earth. In this my plants rooted capitally, and they throw up every year strong shoots from the bottom. For example, last autumn I measured some from Charles Lefebvre, which were more than 9 ft. in height, and this season they are still making fine growth; indeed Mr. A. J. Soames, who paid a visit to my Roses a week or two ago, expressed his surprise at my having such strong shoots so early in the year.

About the middle of August I have the greater part of the old wood cut out, in order that the young rods may have plenty of light and air to enable them to ripen properly, and from this wood I get my show blooms for the following year. In November I give my plants a good dressing of thoroughly rotten cow manure; this I have dug in at once, as I do not like it to remain on the surface during the winter. In March, after the pruning is complete, the ground is lightly forked, and after that occasionally hoed up to the time of blooming. As soon as the bloom-buds are formed, I give the plants plenty of liquid manure, composed of sheep droppings, soot, and a little guano, and sometimes, in a wet season like the present, I sow a little guano; but I much prefer the liquid manure.

With regard to protection of the blooms, I have not shaded or in any way covered a single Rose during the whole of the season. On the day before the Norwich Rose Show we had a gale of wind and very heavy storms of rain, and I quite despaired of being able to show my Roses in good condition. However, I directed two men to keep shaking the blooms all day so that the rain might not remain long in them, and in the afternoon the weather cleared up, and the Roses were pretty dry by the time we began cutting at six p.m. We finished staging at 9 p.m., left Exeter at 10.10 p.m., and reached Norwich at 9.10 a.m. on the following morning. I think the cool nights were the cause of the Roses bearing so long a journey so well, as I have found this year that I have been able to cut larger and rather older blooms than I can generally venture to do. I think I have now told Mr. Fish all that I can about my Roses, and I will only add that if he or any other Rose grower would like to pay me a visit, I should only be too pleased to see them. I only hope that they will come either during the last week in June or the first week in July, and then I can generally promise them a sight worth seeing; but at all events I can always promise them one thing, and that is—a very hearty welcome.

Harrietree.

R. N. G. BAKER.

Rose Show in August.—Mr. Fish is quite right in saying (p. 82) that when the huge buds at present upon Rose trees do open they will be a sight to see. I am one of the hon. secs. of a flower show to be held here on August 15, and we consider we did wisely in fixing so late a date; certainly we have had the weather in our favour. Now I wish to make a suggestion to Mr. Fish and his friends. The Rose show held last week in Birmingham was too early for this season. It was not a good one in any respect. Here we are establishing a floral and horticultural society seven miles from Birmingham and Walsall and not much further from Wolverhampton. We have the Midland and North-Western lines running through

the town, and without doubt Sutton Coldfield is becoming the fashionable and most popular place of resort in the Midlands. Our flower show is to be held in Four Oaks Park, and if Rose growers will care to help us in our first attempt by sending us a few boxes of bloom for exhibition, the committee here will undertake to receive them, stage them, and return the boxes after the show. We cannot do much more, but it may be of some advantage to the growers; and as our sole object in holding a show is to stimulate a love of horticulture, we shall be perfectly well satisfied if the sight of well-grown blooms promotes a rivalry between our local amateurs and the nurserymen.—JAMES B. CULL, *Sutton Coldfield.*

Tea Roses on High Ground.—The fact that frosts are often far more severe in the valley than on the hill-side is well known to fruit growers. Tea Roses, also, frequently bear witness to the fact that frost is more severe in low ground than on that which is elevated. Mr. George Paul's nursery at High Beech is on much higher ground than his nursery at Cheshunt, and he takes advantage of this to grow a superb collection of Tea Roses at High Beech, where their beauty just now is delightful to see. They are mostly standards in the highest state of beauty and vigour, notwithstanding this most exceptionally severe season. The fact is worth noting by all who have an opportunity of growing these Roses on high or hilly ground. It is fair then to suppose that Tea Roses do not suffer from deficiency of heat so much as from winter-killing. There is no doubt that the valley is the warmest place except at night; but, nevertheless, the fact is worthy of notice that even the slight elevation of these low and beautiful Essex hills makes a great difference in the culture of a most beautiful group of Roses. Even much slighter elevations might be very beneficial to them.—V.

THE FRUIT GARDEN.

SUMMER PRUNING.

IN a season like the present, when there is so marked a deficiency of light from the almost constant obscuration of the sun, the importance of keeping the young growth of fruit trees thin cannot be over-rated. In many gardens such fruits as Apples, Pears, and Plums are thin, and the trees are making a good deal of wood; and unless a check, or, better still, a series of moderate checks are given, the systems of the trees will become disorganised through the impetus the roots will receive from a large leaf surface, which is destined ultimately to be removed. It is the delay or neglect of summer pruning which mainly causes the trees to lose their balance, and renders root-pruning necessary to restore it again. When the young summer growth is permitted to run away too much, the produce is usually smaller, as the strength of the tree is carried upwards to form twigs and foliage (all of which, beyond a certain necessary process, is wasteful expenditure), instead of being utilised in increasing the bulk of the fruit. And not only does it act prejudicially in this way, but it shuts out the sun-light, and prevents the circulation of air, without which fruit can neither be large in size nor fine in quality. It is well enough known that the fruits are not so fine on unpruned trees, or where the pruning is neglected, as on trees that are properly cared for. I am not referring now to orchard trees, although in their case, if the necessary skilled labour could be obtained, there is plenty of scope for its employment; but as every man one meets is not competent to perform a surgical operation on the human subject, so many men that are employed in pruning and thinning fruit trees have neither had the necessary training nor possess the necessary intelligence for the work. That over-pruning may be as great, or even a greater evil than leaving the trees altogether in a state of Nature, I readily admit; but no one who understands the subject would seriously recommend either alternative, although one often meets with people who, having practised one extreme, fly off at a tangent to the other.

With trained trees, or those growing in a confined space, the chief aim in the majority of soils should be to keep the roots near the surface, where, in dry summers, mulching could be resorted to for the purpose of supplying the trees with food. The quantity of water evaporated from a good-sized Apple or Pear tree on a warm, bright summer's day must be something enormous, and if this water cannot be found by the roots near the surface, downwards they must go for it; and, as a rule, the damper the soil the more luxuriant the young growth becomes, and the less likely is it to become firm enough to produce at any future time fertile blossoms. There, of course, comes a time, usually sooner rather than later, when root-pruning must be resorted to in order to balance the forces of the tree; but, if the tree had been gradually built up, with its roots kept near the surface by mulching, and its summer growth judiciously thinned and shortened, a good deal of time, and perhaps some dis-

appointment, would have been saved. I was much struck last year by the high colour and large size of the fruit on a number of small Apple trees that had been raised from cuttings several years ago. This year again, although Apples are scarce, the little trees are heavily laden with good-sized fruit for the season. The fruit is finer because the roots are near the surface, and, beyond a certain necessary progress, the whole of the forces of the tree are employed in fruit production, either present or prospective. Trees that annually bear a sufficient crop of fruit do not, as a rule, waste their energies in the production of surplus wood. The crop of fruit steadies them, and acts as the best and most natural check upon exuberance of growth. In the summer management of fruit trees there is plenty of scope for intelligence of the highest order.

Fruit trees vary very much in character; some are robust and vigorous, others are constitutionally delicate. Again, some commence growth early in the season, and require prompt attention; others are later in demanding the cultivator's care. Therefore, it will easily be seen that no hard or fast line can or should be laid down, either as to the time or the mode in which summer pruning should be done. But, speaking generally, the top of the tree should be pruned, first permitting a little more development to the leaders than to other shoots. The strongest shoots should be stopped first, cutting back to about four or five good stout leaves. Some good fruit growers divide the summer pruning into three periods, doing the top portion first, then the middle of the tree, and the bottom portion last. This system of pruning is based upon the known fact that the sap flows more freely upwards in direct lines than laterally or horizontally along the lower branches; and by pruning the top of the tree first, the outlet for the ascending sap is for the time blocked, and its force is directed into the lower branches, in the same way as a current of water may be stopped and turned in an opposite direction by damming up the stream. No doubt, in the course of time, the top will regain its ascendancy, but still, by careful management of the pruning, there should be no difficulty in keeping each portion of the tree under the influence of a rapid healthy circulation, and the balance between the various parts fairly well maintained. And moderate-sized, well matured wood is more likely to be obtained by giving a series of small checks—by dividing the pruning into periods of ten days or so—than by cutting all the young growth off at once as is commonly done.

E. HOBDAV.

KENTISH FRUIT GARDENS.

ON Friday last a party consisting of some fifty horticulturists, chiefly from the neighbourhood of London, made an excursion to Swanley to see the extensive fruit gardens which abound in that district, and also to visit the nursery of Mr. Cannell, which is wholly devoted to florists' flowers. The glass ranges are extensive and form a compact whole so that they can be easily heated. Several of the houses were gay with Pelargoniums of all classes and in endless variety, but more particularly those of the zonal type both single and double flowered. By a method of skilful culture and with the assistance of light houses, so arranged that the plants can be placed near the glass, the whole of the plants, which are of moderate size, are in vigorous health and flowering profusely. The collection of tuberous rooted Begonias was at its best and made a grand display, filling one house entirely. It comprised most of the varieties of merit, of which a few are particularly noteworthy; viz., Wonder, a vigorous-growing kind, dwarf in growth, with foliage similar to that of *B. Pearcei*; its flowers are of good form and size, and are rich yellow in tint with a flesh-coloured tinge in the centre, the tips of the petals being suffused with the same colour. Such beautiful kinds as *Acme*, *Paul Masurel*, *Massange de Louvrex*, look well when grown into large specimens, as does also the chaste-flowered *Queen of Whites*, a very appropriate name for this variety. *Verbenas* receive particular attention at this nursery, as a house filled with the best varieties fully showed. Amongst them might be seen almost every conceivable shade of colour, and their adaptability for greenhouse culture as well as for bedding purposes cannot be overrated. A decided advance, too, has been made in these with regard to size of truss and form of the pips, points well exemplified here. *Abutilons*, *Coleuses*, *Carnations*, in fact all kinds of florists' flowers, are grown more or less largely in this nursery. The present season has rendered it rather premature to comment on the *Dahlias* grown here as there are not many yet in flower, and the same remark applies to the general stock of out-door bedding plants, such as *Pelargoniums*, *Lobelias*, *Alternantheras*, *Calceolarias*, &c., to which a large area is devoted. The *Snapdragons*, however, are well worth a passing note, for they are very gay and represent some remarkable colours, from the purest white to the deepest crimson as well as bright yellow selfs, and in some a combination of several colours arranged in stripes. The stiff marly loam hereabouts is apparently well fitted for the

growth of *Roses*, as Mr. Cannell's collection is looking in fine health and producing an abundance of bloom. There are also large plots occupied by *Strawberry* plants, a fruit to which especial attention is paid here.

After examining the contents of the nursery under notice, the party took a walk through the adjoining fruit fields, the *Strawberry* crops in which are in full bearing. The soil consists, for the most part, of a stiff clayey loam, and apparently not easily worked. Most of the small fruits thrive remarkably well on it, especially *Strawberries*, than which it would be difficult to procure better anywhere, either as regards size, flavour, or productiveness. The kinds principally grown appeared to be *Sir Joseph Paxton*, *Dr. Hogg*, *Eleanor*, *Premier*, *British Queen*, *Garibaldi*, &c. A thin layer of clean straw is placed round the plants about the time when they are in bloom, and this effectually keeps them clean. Gathering the fruit for market by scores of men, women, and children was an interesting operation, as was also the expeditious way in which it was packed in baskets for transit. *Raspberries*, too, are largely grown here, and cover an area of many hundred acres. The crop of these is also heavy. The red-fruited kinds are those grown principally, but only such as are of the *Fillbasket* character. They are cultivated in rows without stakes or other supports, and they did not appear to require any; the canes, being cut back to about 3 ft. at the winter-pruning, stand quite erect and bear abundantly. *Currants*, chiefly the red and black varieties, are grown extensively in the locality, as are also *Gooseberries*, which, by the way, were severely injured by the caterpillar, many of the trees being completely denuded of leaves.

Orchard fruits do not appear to receive much attention in this part of Kent, as the orchards passed through consisted chiefly of worn-out *Lichen*-covered trees, and the untitled condition of the surface did not lessen this impression. On some of the farms *Potatoes* formed an important crop, and the soil appears to suit them admirably, as more healthy plots of them are seldom seen. The ubiquitous disease, however, has shown traces of its presence, though not as yet to a great extent, and probably the present more favourable weather may keep it in check. For the purpose of cleaning the land, and also to alternate the crops, *Wheat* and other cereals are cultivated, and also *Hops*, fields of which were passed through, and, as far as can be seen at present, a productive yield may be anticipated, though their growth does not seem equal to that made in more favourable seasons. They are, however, pretty free from insect pests.

W. G.

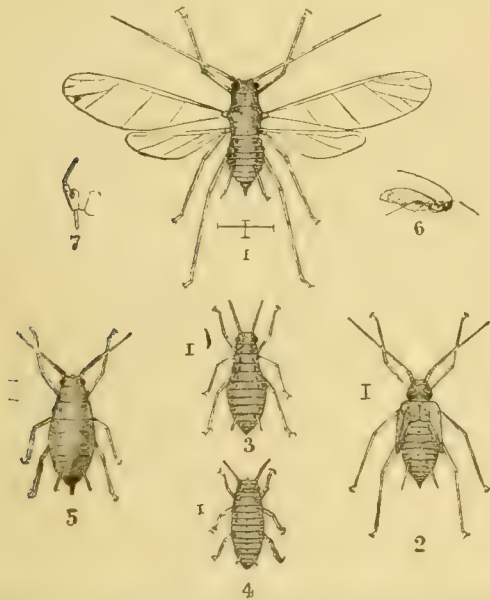
Dying off of Apricot Branches.—Those who take an interest in *Apricot* trees, and watch their progress with a practised eye, may often perceive a few weeks previous to the fall of the leaf a tendency in certain branches to indicate incipient debility by a weakly growth, and a certain flagged and hang-down appearance in the foliage. This is the usual forerunner of the dying away of the branches in the spring. When the sap is on the move, they make a feeble effort, throw out a few small leaves, and then collapse and die. The causes of this are still wrapped in mystery; but I have known it to follow after excessive fruit bearing, and also where the necessary manipulations through the growing season have not been sufficiently gradual, where too much has been removed at one operation thereby checking the abundant flow of the sap, thus causing gumming, and sowing the seeds of future debility. Another great outlying cause is the deficiency of the water supply during the swelling of the fruit previous to ripening, and again after the fruit is gathered, at which time the borders should be well saturated, which will plump up the buds, and cause the wood to look fresh and bright. In the final pruning, therefore, look well, in the first place, to see that the wood has this appearance of plumpness and health, and remove at once any of a debilitated and doubtful appearance. Then look to the condition of the tree, as to its being evenly furnished; and if overcrowded in any part, let it be judiciously thinned out there. The practice of training in plenty of young shoots, will leave a very useful margin to enable the operator to bring up young healthy wood in any needful direction, and also to make provision for prospective vacancies, by leaving as much young wood as possible low down in the centre of the tree as reserve, even at the risk of a little crowding. The trees may then be carefully trained out equally all over the surface, using as few nails and shreds as is consistent with security, and allowing supreme symmetrical training to be subordinate to the general welfare of the tree.—*Florist*.

Heavy Crops of Peaches.—I see in the *GARDEN* of Saturday last (p. 105) that Mr. Cowburn of Sunbury Park gathered 330 dozen of *Peaches* off one tree and 250 dozen off another; is not this an error? I have a large tree which produced 23 dozen fine fruit, and there was no space for more.—R. H. [The figures in question are printed correctly according to Mr. Cowburn's statement.]

GARDEN DESTROYERS.

GREEN FLY, ROSE APHIS, OR ROSE BLIGHT. (SIPHONOPHORA ROSE.)

THIS insect is one of the large and destructive family called aphides, which is only too well known to all who have given the slightest attention to the cultivation of plants. It may be classed without hesitation among the gardener's worst enemies, as there are few plants which do not suffer more or less from the attacks of some members of this family. Those, however, which belong to the Natural Orders Fumariaceæ, Gentianaceæ, and Iridaceæ are said to be entirely free from them; and Cryptogamic plants and Labiates nearly so. The family aphides contains a very large number of genera and species, which are widely distributed throughout temperate countries, but they are almost unknown in the Tropics. The Rose aphis is unfortunately one of our commonest species, and the injuries which Roses sustain from it are well known to every lover of these flowers (and who is not?). Few Roses are exempt from their attacks, but the Tea-scented kinds and those whose leaves are somewhat evergreen suffer less than others. These insects are often called blight, and many persons assert that when during northerly or easterly winds in dry weather there is a haziness in the atmosphere, that haze is blight, and caused by immense multitudes of



1. Winged female; 2. pupa; 3. larva; 4. alitta just born; 5. wingless female; 6. side view of winged female showing the position of the wings, at rest; 7. profile of head. (Lowin: the phylloxera.)

these insects, and urge, as a proof of their theory, the very sudden appearance at times of myriads of these aphides. These insects have not, however, anything to do with atmospheric effects. No doubt they often make their unwelcome presence known in large numbers, and plants may be found covered with them which only a few days before were apparently free from them; but this, no doubt, is due to many of the eggs hatching at the same time, and to the very rapid manner in which their re-production is effected. Most of the females are viviparous, that is, they bring forth their young alive instead of being enclosed in an egg; and so fast do they multiply, that a viviparous female which I was watching gave birth to two young ones within half an hour. This seems, however, to be an unusually rapid rate. Mr. Buckton, in his most interesting and valuable work on the British Aphides (one of the Ray Society's series), states that he has known eight to be born in six hours from one female. One of the peculiarities of this very interesting and remarkable group of insects is that some of the females never lay eggs, but always produce their young alive, whilst others lay eggs and never reproduce in any other way. The young which are born alive begin to produce young in the course of from four to eight days, so that the rate at which they multiply is very astonishing. Prof. Huxley has calculated that the tenth generation alone (not including the previous ones), if all the members survived, would contain more matter than 500,000,000 stout men (more than the population of China), assuming that an aphis weighs 1-1000th of

a grain. Mr. Buckton calculates that the living progeny of a Rose aphis, supposing that each aphis lived twenty days and gave birth to twenty young, at the end of 100 days would be 3,200,000, and at the end of 200 days 10,240,000,000,000. When we consider these figures we may indeed be thankful that, owing to their very numerous enemies, we are not more troubled with these pests. Another very curious fact about aphides is, that the impregnation of one female by the male is sufficient for many succeeding generations, so that a female having paired is not only rendered fertile, but her progeny for many generations also without any intercourse with the males on their parts.

The Rose aphis does not entirely confine its attacks to Roses, but infests Dahlias, Asters, Verbenas, and many other plants cultivated under glass. The injuries it occasions to plants when in large numbers is very great, as it deprives the young and tender parts of so much sap, causing the leaves to crumple up and preventing the buds from flowering properly. Numberless plans have been tried for their destruction, but in seasons favourable to their growth it is almost impossible to keep Roses grown out of doors free from them. Those grown under glass, however, can easily be kept clean by fumigating them with Tobacco smoke. This plan cannot, however, be so easily carried out with Roses growing in beds out of doors; still, by covering the head of the plant with some kind of air-tight cloth, well tied round the stem, the green fly may effectually be killed with the assistance of a fumigator. The cloth should be stretched over a frame, which anyone could make, to keep the buds and young shoots from being injured. Carefully brushing such parts of the plants as are infested with spirits of wine, benzine, or 1 wineglassful of paraffin to 4 gallons of water kept well mixed is very effective, as it kills the flies at once. Simply brushing such parts of the plants does a great deal of good, as many are killed by the operation, and the others, once knocked off, cannot well return (except the winged ones). Crushing the aphides on the trees with one's finger and thumb is a very effective, but unpleasant method of destroying them. Syringing with Tobacco water, or a weak solution of sulphate of copper (1 oz. to 6 gallons of water), or an infusion of Quassia chips (4 oz. of chips should be boiled for ten minutes in a gallon of soft water, and 4 oz. of soft soap should be added as it cools); or 2 lb. of washing soda, 1 oz. of bitter aloes dissolved in hot water, when cold add 1 gallon of water; or 8 lb. of soft soap dissolved in 12 gallons of rain water, added to 1 gallon of Tobacco water; or water in which Tomato leaves have been macerated, are receipts which are much recommended; even cold water when applied with some force is very effective. M. Lachaume, in THE GARDEN of the 10th May, recommends the use of a disc of sheet metal, about 2 ft. in diameter, with a slit from the edge to the centre about 1½ in. wide, fastened to a handle; before using it the disc should be smeared with gas-tar, pitch, or something very sticky. It is then placed under the head of a Rose bush, the stem passing through the slit; the branches must then be tapped to make the aphides fall on to the sticky plate, from which they cannot escape. The difficulty in this plan is to dislodge the insects by merely tapping the branches.

Fortunately these insects have an unusual number of natural enemies. Besides the insectivorous birds, which destroy great numbers of them, several species of small wasps carry them off to fill the cells in which their grubs are bred. The grubs of the common seven-spotted and two-spotted ladybirds, the grubs of the lace-winged fly (described in THE GARDEN of the 1st of March), and of certain two-winged flies very common in gardens, which may often be seen hovering over flowers, and apparently remaining motionless in the air for some seconds together, belonging to the family Syrphidæ, destroy the aphides with wonderful rapidity. The last-mentioned grubs will suck out the contents of the body of a full-grown aphis in 1½ minutes, and will kill several one after the other as quickly as they can suck them. Numbers of the green fly are destroyed by very minute parasitic insects belonging to the Ichneumonidæ. These little four-winged flies get on to the backs of the aphides, and plunging their ovipositors into their victims, lay their eggs within them, which soon hatch, and the grubs before long destroy the aphides. Those which contain parasites may easily be recognised by their brown, hard, and distended appearance. Very rapid changes of temperature seems to check the multiplication of aphides. A heavy thunderstorm will often kill thousands, and cold rain is very destructive to them. This season, which has been so unusually wet and cold, the Roses have been particularly free from them in most places. The eggs, which are laid in the autumn, do not hatch until the following spring, when all the aphides which are hatched are wingless females. These in a few days begin to produce young, which are borne alive, and very much resemble their mother in general appearance, but their legs and antennæ are much shorter in proportion (see fig. 4). After some changes of skin they assume the form shown in fig. 3, and after further moultings, either show the rudiments of wings, as in fig. 2, or else are in an intermediate

state between figs. 3 and 5. When in either of these stages, this insect may be said to be in the pupa state. Changing their skins again, they appear as perfect insects, those with the rudimentary wings as alate, or winged females, as represented in fig. 1; those without as apterous or wingless females, as shown in fig. 5. The winged females assist greatly in the increase of their species, for being able to fly they can easily move from one part of a bush to another, or fly off to other plants, founding fresh colonies wherever they may settle. They are not so abundant as the wingless ones, except in the spring and autumn, when they frequently migrate in great numbers. About the middle of September the last generation is usually produced, which consists of males and females. The former are sometimes winged, sometimes wingless; they are very much like the females, but are somewhat smaller. The females are mostly wingless and viviparous. After pairing with the males, they lay their eggs, which are very large in proportion to the size of the insect (nearly half the size of its body), a few together near the buds. They are long and oval, and when first laid pale yellow, but soon afterwards become black. They are covered with a slimy coating, with which the female attaches them to the plant.

These eggs hatch in spring as before mentioned. M. Lachaume, in his article on "Insects Hurtful to the Rose," says that "what naturalists have hitherto taken for eggs are nothing more than the last brood of aphides, which assume a thick black coat in order to stand the winter's cold." This must surely be a mistake, for though some of the viviparous females survive the winter, such accurate observers as Mr. Curtis and Mr. Buckton both speak very positively of the eggs. There has often been much discussion as to the origin of what is usually called Honey Dew, that sticky substance one frequently finds on the leaves of Sycamores, Limes, &c., and also on garden seats which have stood under trees. It seems now to be generally admitted that it is secreted by aphides, which are furnished with two organs, placed near the end of their bodies, called cornicles, through which they secrete a sweet, sticky fluid, which, as the insects are generally feeding on the undersides of the leaves, falls on to the upper surface of the leaves below. The Ant is very fond of this fluid, and will gently tap the sides of an aphid with its antennæ in order to make it exude some; as soon as a drop appears the ant at once swallows it. M. Lachaume, in his paper which I have already quoted, states that "ants will suck these insects to death in a very short time." The observations of other entomologists do not, so far as I know, in any way confirm this, nor has a case ever come under my own notice. It would be very much like killing the goose which laid the golden eggs on the part of the ants. The Rose aphid in its earlier stages is almost entirely of a pale green colour, its eyes, antennæ, legs, and cornicles being somewhat darker; and the three last-mentioned organs much shorter in proportion than in the maturer forms. Its head is furnished with a long proboscis or rostrum, which is in three joints; when not in use it is carried between the forelegs of the insect. With this instrument it obtains the juices of the leaves or young shoots on which it lives; it is not, however, inserted into the plant, but it serves as a sheath for three long hair-like organs, which the insect can protrude from it, and with which it pierces the leaves with a saw-like motion. These organs are neither barbed nor toothed, but a plentiful supply of sap flows from the incision they make, which the insect sucks through its proboscis with a pumping action. In all its stages the insect derives its nourishment in this manner. After changing their skins, their bodies take a more oval form, and are capable of being very much distended, which is usually the case when plenty of food can be obtained, when the joints of the body can with difficulty be seen; when food is scarce the edges of the body turn up and form a kind of wavy ridge. In the winged state the insect is about $\frac{1}{2}$ of an inch long. The head and eyes are black; the antennæ are very long, 2-10ths of an inch, and delicate, and consists of seven joints, the two first being short, stout, and rounded, the third long, the fourth and fifth rather shorter, the sixth short, and the seventh very long and tapering. These last two are nearly black; the others are brownish, with darker tips. The thorax is greenish-black, more or less dark. The body is oval, pale green, with nearly black spots, and cornicles; the latter are long, round, and slightly tapering. The legs are very long. The thighs are green, with blackish tips, the shanks brownish with black tips and feet. The upper pair of wings when open measure about 4-10ths of an inch across; they are long, narrow, and very simply nerved. The lower pair are much smaller and the nervures still simpler; on the upper edge they are furnished with a small double hook, with which during flight they are attached to the upper pair. All the wings are slightly iridescent. The wingless females are about $\frac{1}{4}$ of an inch long, and are somewhat pear-shaped. Their heads and bodies are entirely pale green; their eyes are dark reddish-brown; their antennæ are brownish, with darker tips to the joints, and are not so long as their bodies; the legs are brownish with darker tips to the joints. This insect is sometimes of a pale reddish-brown.

G. S. S.

ANSWERS TO CORRESPONDENTS.

Fruit Nets—How can I best preserve fruit nets from rotting? I have tried a mixture of tar and colza oil, but the nets have not dried, though they were dipped some months ago. E. I. T. [I do not think that it would pay any one to dip their own nets with the view of preserving them, seeing they are now manufactured so cheaply for garden purposes that new ones made to any width or size of mesh may be obtained for the same money at which second-hand fishing nets have but recently been supplied. Mr. Eddy, Porthleven, Cornwall, will supply nets that, if only kept dry when not in use, will last for a number of years. Dipping in tar and oil would be useless expense if the material of which the net is made is not of good quality. —JAMES GROOM, *Linton Park, Maidstone*.]

Salt & Worms. How much salt to the gallon of water may be safely used to destroy or bring worms to the surface of a lawn? —A. B. [Salt is a somewhat dangerous material to apply to lawns. If used stronger than from 4 oz. to 6 oz. to the gallon the Grass will be likely to suffer at first, and later in the season will grow rank and coarse, so that except in extreme cases it would be better to depend on frequent sweeping and rolling, as even if the salt proved a remedy at first, it would soon lose its effect. —J. G.]

Hanging Baskets.—I have just purchased three fancy wire baskets each about 24 in. in diameter to hang in my stove. Will you kindly inform me how to fill them effectively? —J. D. [For covering the outside of basket No. 1, use *Commelynna agraria variegata* and *Selaginella Kraussiana*, let a plant of *Russelia juncea* occupy the centre, and surround it with three or four plants of *Cissus discolor*. For basket No. 2 cover the outside with *Tradescantia zehriana variegata*, plant *Begonia foliosa* in the centre, and surround it with *Selaginella uncinata* and *Stenotaphrum glabrum variegatum* planted alternately. For basket No. 3 plant within the margin and the outside with *Panicum variegatum* and *Selaginella Galeottii*, and use *Nephrolepis davallioides* for a central plant. The central plants should be good specimens, such as have been well rooted in 10-in. or 12-in. pots. Line the baskets with a thin layer of tough peat, and plant the outsides before filling them. The first growths of the trailing plants should be pegged to the baskets, but the after growths may be allowed to hang free. —C. M.]

Quick-growing Trees.—What trees are most suitable, on account of their quick growth, to conceal an objectionable background, where the soil is fairly deep and good, in fact inclined to be heavy? and what is the smallest space that should be allowed between each tree, so that it may grow properly? T. W. H. [For quickness of growth and effectiveness as a screen, nothing amongst deciduous trees surpasses the new Canadian Poplar, cuttings of which will, upon suitable soil, attain a height of 20 ft. in three years. Next to this for producing speedy effect may be reckoned the black Italian Poplar, and the Huntingdon Willow, both of which may be propagated from cuttings. A few pollards of any of these will yield abundance of croppings fit for the purpose. By inserting short cuttings—say 2 ft. lengths—in front, and then gradually increasing the height of the standards, used up to 6 ft. or 8 ft. for the back row, a furnished appearance will at once be given to the whole space. The distances between the plants or cuttings used should depend very much upon the depth available for the screen. If this be too shallow, thicker planting will be necessary to produce the desired effect, say about 6 ft. from tree to tree; but with greater depth from 8 ft. to 10 ft. will be found enough. If near to some of the larger truncheons, a few plants of the true Irish Ivy (*Hedera canariensis*) are inserted, they will rapidly climb up, and afterwards hang in festoons from the heads of the pollards, thus filling up intermediate spaces, and producing pleasing effects. Limes or Chestnuts will answer the purpose, but their growth is slower than that of the trees just named. Norway Spruce in the front lines would be very effective. A good previous trenching of the soil and the addition of some light lime compost will greatly facilitate the growth of the trees; and thick planting, with early and careful stopping, foreshortening, and thinning, will produce a good screen in a very short time. —A. J. B.]

Names of Plants. 1. *Centaurea macrocephala*; 2. *Lilium croceum*; 3. *Campanula latifolia*; 4. *C. nobilis*. *Dieron*—1. *Clematis viticella*; 2. *Fuchsia virgata*; 3. *F. glabrosa*. *P. R. C.* 1. *Adiantum tetraphyllum*; 2. *Nephrodium molle*; 3. *Cheilanthes farinosa*; 4. *Pteris aculeata*. *N. B.* *Ophiopogon spicatus*. *W.*—Varieties of *Ixia* and *Sparaxis*. *W. L.* We cannot undertake to name Roses. They can only be named with certainty by those who grow them. *F. W.*—*Cordylone australis*. *S. S. Y.* The yellow netted leaved plant is *Lonicera brachy-poda*; the other, *Jasminum officinale*. The small scrap is a species of *Sedum*. *W. H.*—The annual Beargrass (*Polyopogon monspeliensis*). *D. M.* *Diplazium glutinosum*. *N. 1.* *Sedum Lydium*; 2. *Spergularia rubra*; 3. *Thymus citridorons variegatus*. *Abbershot*. 1. *Adiantum venustum*; 2. *Phlebotium aureum*; 3. *Adiantum hispidum*; 4. *Goniophlebium subauriculatum*; 5. *Leucostegia immersa*; 6. *Polyopogon pectinatum*; *Polystichum capens*; 14. *Asplenium bulbiferum*; others have numbers misplaced or are too much withered for recognition.

Diseased Rose Leaves.—*P. F. G., Cork*. Your Rose leaves are badly infested by a fungus named *Phragmidium mucronatum*; the Rose-rust and the Rose-mildew are also present. Cures for these pests are at present insufficiently known. —W. S.

Clove Carnation.—*W. S. C.*—The bloom of your seedling sent to us is large and fine in form, bright in colour, and well worth perpetuating.

Questions.

The Pennsylvania Lawn Mower.—Have any of the readers of THE GARDEN had any experience of this lawn mower, which was introduced last year (1878)? Does it do its work with more ease than those with rollers behind the cylinder? It is said to be lighter, as regards draught, than any other mower. Any information on these points will be gladly received. *J. ALLSOP, Dalton Hall, Hull*.

Palms for the Open Air.—Can any of your readers inform me whether *Clamatus Fortunei* (the fan-like palm) and *Corypha australis* would live if planted in the open air in Berkshire; the latter has been in a cool house for some time. Also whether *Eubusia Metcali* and *Gymnothrix latifolia* would also live in the open garden. —F. C.

Summer Flowering Orange Crocus.—Mr. George Maw, of Benthall, Hereford, asks us to mention that he received through the post on August 1 from an anonymous correspondent the fresh flower of an Orange Crocus, which appears to be distinct from either of the known autumn-flowering Orange species. As he cannot ascertain either from the handwriting of the address or the post-mark to whom he is indebted for this interesting contribution, he would be much obliged if the sender would communicate with him and give him particulars of the origin of this summer flowering Orange species of Crocus, which is probably new to science.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

THE HEAVITREE ROSES.

It is quite evident that Mr. Baker's Roses were what is called by our Yankee cousins an "eye opener" to the Rose grower of East Anglia, who had not had the opportunity of seeing them at our great metropolitan exhibitions, and it will perhaps surprise Mr. Fish if I say that wonderful as were the blooms at Norwich, he would be still more astonished if he could see them at home. Some time ago I happened to see them at an exhibition at Exeter, and it will readily be conceived that they must be finer in such a case. We all know how fleeting are the hues of some Roses; those exhibited at Norwich had been probably cut twenty-four hours or more, so that some of the bright tints of the scarlets and delicate hues of the pinks had begun to fade; but when brought fresh from the garden, half a mile distant, not having had to endure the jolting and confinement of a railway journey of some 300 miles, it is impossible to forget the beauty of the stand to which I allude. It is not even like seeing them in the garden, for here the very best are culled from an extensive collection of the very best exhibition varieties, each exhibited to the best advantage, and placed so that the Rose lover can take in all their beauty. It is not, however, to be supposed that Mr. Baker is the only exhibitor who can show in this style; his celebrated rival, Mr. Jowitt, of Hereford, is so near him that they have each won the fifty guinea cup given by Mr. Cranston to the National Rose Society, and it was to have been decided this year which of the two was the better man, but by mutual consent the contest, owing to the exceptionally bad character of the season, has been postponed until next year.

There is no secret in the manner of growing the Rose, as practised by Mr. Baker, but there are some plain things which he does not forget, open to every one who attempts, as he does, exhibiting on a large scale, while in one or two things there are points in his favour not within the reach of all. The climate of Devonshire, and of Exeter especially, is peculiarly favourable to the growth of the Rose, soft and genial, generally exempt from severe frosts, although, strange to say, this year it has suffered more than counties usually cold. The greater humidity of the air is also favourable, for, where soil is favourable, Roses delight in moisture; it is only on heavy clay lands that it is injurious to them. Some of the very finest growth I have seen this year has been in Scotland, in places where the rainfall is just double what it is in the south and east of England, where east winds prevail more, and are more trying in their effects.

The soil in Mr. Baker's garden is well adapted for Roses; it is a good rich loam, not perhaps so good as some, such as the deep, unctuous loam of Hertfordshire, or Hereford, or Essex, but still a thorough Rose soil; now although care and skill may to a certain extent improve an unfavourable soil, yet the Rose grower who has one which is naturally good has an immense advantage, as I suppose most persons would recognise in whatever class of plants they are interested. Some soils absolutely refuse to grow good Roses, and others do so with great difficulty.

These are the two points on which alone Mr. Baker can claim a superiority over some Rose growers, certainly not over all; in those that follow it requires only means, and that love without which all else is of little avail. He grows a very large number of Roses, many thousands—how many I do not at present recollect, but it may give some idea of the extent to which enthusiasm will carry Rose growers to state that Mr. Jowitt last autumn budded 3700 Roses in order that he might successfully compete for the challenge cup; he had whole rows of Duke of Edinburgh, La France, Charles Lefebvre, Marie Baumann, &c., with from 50 to 100 plants in each. Mr. Baker knows which are exhibition kinds, and, instead of filling his garden with doubtful sorts, he goes in for those only which are likely to be useful to him when the day of contest comes round. His plants are all dwarfs on the Manetti alone, I believe—at least, they were so two or three years ago; that he would grow as good on the seedling Brier I do not for a moment doubt, but he is unwilling to discard an old friend for an untried one. It is clear, I think, from the experience of this season, that for early Rose shows the Manetti is alone to be depended on; the seedling Brier not, as the blooms come later on it, and those Rose growers who looked to it to supply them with blooms

were disappointed. Mr. Baker does not keep his plants very long—a couple of years used to be his limit, but I believe now he keeps them longer; thus they have all the vigour of youth, and nothing could be more beautiful than the even rows of plants with which his garden was filled when I saw it.

As to cultivation, he feeds his plants tremendously; the amount of the very strongest manure that Rose trees will assimilate is something remarkable. I have seen some beds with nearly 1 ft. of manure on them, and yet they only seemed to rejoice the more for their very liberal supply. Mr. Baker farms as well as gardens; he is famous as a prizetaker for his breed of Guernsey cattle, and other matters; he has, therefore, at hand what the Rose delights in—the manure from the pig-sties especially; "pity 'tis, but true," that the delicate perfume of La France or Marie Van Houtte should be elaborated from such material, but such is Nature's chemistry, and both size and perfume are obtained in this way. Of course, Roses will grow without such supplies, and equally of course such treatment will not improve the appearance of the garden, but I am not writing of such matters, but only of the way in which these grand exhibition Roses are grown by Mr. Baker and others. Then the bushes are carefully dis-budded; no stem is allowed to carry more than one flower, and only a limited number on each plant. Mr. Fish limits the bunches on his Vines, and thins out his Grapes, and on the same principle Mr. Baker manages his Roses. Lastly, as the time draws near, and the buds most likely to be useful are approaching maturity, they are shaded both from the scorching rays of the sun (but little of this has been necessary this year) and also from rain, which is so apt to damage the leaves. It would, perhaps, be needless to add that to all these things Mr. Baker adds an intense love for the Rose, and is possessed of great energy and perseverance; without these, and the direct personal superintendence which such qualities imply, such success as he has attained is not to be secured.

I do not know whether this will meet Mr. Fish's requirements; there is nothing new in it, but for all that I believe it contains all the information that is to be had concerning the method in which those Roses to which he alludes were produced, and if I have omitted aught, I shall be glad, if possible, to supply the omission if Mr. Fish will notify it.

DELTA.

—Rosarians must feel proud—I can answer for one of the oldest and largest of the brotherhood—and they who wish to be Rosarians must feel thankful when they read Mr. Baker's unselfish, unreserved, and instructive letter (p. 135) concerning the cultivation of the Rose. Very few men would be thus candid, generous, and large-hearted in freely presenting to others the results of a long and costly experience; and all of us, including those whom he has vanquished in our bloodless wars of the Roses, must rejoice in his success. I would ask to make two brief remarks in the same spirit, and with the same intention with which he has written, namely, to promote the popularity and to extend the dominion of the Queen of Flowers: Firstly, that the Manetti stock, on which Mr. Baker grows his beautiful Roses, will not suit all soils; and, secondly, that, although the blooms from "cut-back" trees are, as a rule, the most reliable, because, as a rule, the poor "maidens" are frost-bitten in that terrible season which we persist in calling spring, there are times, nevertheless (all the more glorious because of their rarity), when the bud, uninjured and unchecked in its growth, and attaining the perfect fullness of Rosehood, will exhibit that development of form, colour, size, and foliage as shall make the astonished owner sigh in admiration.

S. REYNOLDS HOLE.

Cauntton Manor, Newark.

ROSES ON TREES.

As a pendant to Mr. Ellacombe's paper on Roses on trees (p. 99) allow me to describe a Rose arrangement in my garden which was in great beauty till destroyed by the heavy rain of last Tuesday. I have too large Cratæguses, round-headed standards, growing close together, so that their edges touch, forming, as it were, two gentle hills with a valley between, and sloping down to within about 6 ft. of the lawn. Of these one is *Cratægus Crus-galli*, the other *C. tanacetifolia*. Behind, and partly through these, climbs a very old Noisette Rose—all that now remains of an arched trellis—producing a vast number of bunches of white flowers, six or eight together and about 1½ in. or 2 in. across. The old gnarled stem of the Rose is scarcely noticeable amongst those of the Thorns till it reaches the top of them, whence it descends between the trees in a regular torrent of blossom, in addition to occupying the topmost boughs of the Cockspur Thorn. The general effect is almost that of a large patch of snow between two bright green hills—a combination very common in the higher districts of Switzerland. A smaller plant of the same Rose has recently been trained up a large *Arbor-vitæ* which, rom moving, has lost its lower branches for some 4 ft. or 5 ft., and

has its stem clothed with Ivy. It is now festooned with snowy flowers hanging down from and against the dark green of the Arbor-vitæ and Ivy, forming a charming contrast. It seems a great pity that we do not oftener thus wed one tree to another—a stout and strong to a slender and clinging one, as Virgil in the “Georgics” talks of wedding the Vine to the Elm, as is, I believe, done to this day in Italy. Did we do so we should oftener verify the motto that gardening—

Is an art
Which does mend Nature: change it rather: but
The art itself is Nature.

Monkstown.

GREENWOOD PIM, M.A., F.L.S.,

THE TIME OF ROSES.

BY THE REV. CANON HOLE.

THE time of Roses, when the Americans are kind in their arrangement of the weather, and when there is nothing seriously amiss with the perihelion, commences about the middle of May, and ends in November. The tide of our glorious Red Sea begins to flow at the date specified, reaches high water at the end of June, remains in full flood until the middle of July, and then slowly ebbs, until, congealed by bitter frosts, it becomes a Dead Sea, or Mer de Glace, in December.

And as the visits of royal personages are announced on city-walls, so the advent of the queen of flowers is foretold by the mural Roses. These are the advanced guard of the reginal retinue, and a Marshal of France—Maréchal Niel—in all his golden splendour, claims the honour, with handsome invincible Gloire de Dijon for his aide-de-camp, to precede the army. Then the hedgerow Roses, representing the love of a loyal people, line the route of the royal progress:

“The road shall blossom, the road shall bloom,
So fair a queen has left her home.”

Where, when, and how shall we see this royal progress best? My reader, if I knew your habitat, I could probably tell you of some *point d'avantage* near to your home; but, not having this information, I will give you a list of our most distinguished Rosarians throughout the country, from the Land's End to the Border, hoping thus to introduce you to some scene of beauty which you can readily reach, and where Roses bloom in all their glory. The Rose merchants will welcome you, of course, because you can no more leave their nurseries without giving an order for Roses than a young lady can leave London without buying a bonnet; and the amateurs, I am sure, knowing them well, will be glad to see you—your quest of the beautiful (not to mention your good taste in reading this paper) being a guarantee to them of mutual sympathies.

In Devonshire, the native home of the exquisite Rose *Devoniensis*, there is the nursery of Messrs. Curtis & Co. at Torquay, whence came the seventy-two Roses which were the first to bloom of all the Roses in England, and consequently to take the highest honours at the great show of the National Rose Society held in June at the Crystal Palace; and also, in this favoured county, there is the famous Rose garden of Mr. Baker, one of the most successful of our generals in the Wars of the Roses, at Heavitree, near Exeter. In Wiltshire, at Salisbury, there is the nursery of Messrs. Keynes & Co., from which some of the grandest of Roses have been sent to our shows; and at no great distance there is the Stapleford nursery, where Mr. Bennett has recently raised some most interesting seedling Roses, and among them, as he announces, that *summum bonum* and roc's egg of the Rosarian's hope—a yellow perpetual Rose! In Sussex there are the Woodlands nurseries, near Maresfield, where Messrs. Wood & Sons have their *rosea rura*, their farm, acre after acre, of Roses; and also the gardens of Messrs. Mitchell, at Piltown, of long success and renown. In Kent, Messrs. Kinmont & Kidd have recently sent from Canterbury an excellent collection of Roses, for which they won a premier prize; and in this “Garden of England” the amateurs are numerous, notably Mr. Hollingsworth of Maidstone, Mr. Burnaby-Atkins of Halsted, and Captain Christie of Buckhurst Lodge, Westerham (in whose honour Monsieur Lacharme has named one of our most attractive Roses), who realise their favourite in her perfection. In Essex, Mr. Cant, of Colchester, can write *nulli secundus* over the entrance of the Mile End nurseries, when his Roses are in their glory. In Hertfordshire, I saw last year, and on a summer's eve, 40,000 standard Rose trees in one plat (only a moiety of the Cheshunt nursery of Messrs. Paul & Son), glowing in the soft splendour of the setting sun, some of the most brilliant varieties—such as the Duke of Edinburgh, Sultan of Zanzibar, and my namesake, Reynolds Hole—being indigenous to the soil, born in that beautiful garden. Hard by, about a couple of miles, are the extensive and picturesque grounds of Messrs. William Paul & Son, famous for their “pictorial trees” as well as for Roses. These adjoin the Waltham Station, so that visitors by rail pass from the platform into

the nurseries, and, having enjoyed their manifold delights, including many charming Roses sent out by Mr. William Paul, such as Beauty of Waltham, Star of Waltham, May Quennell, *cum multis aliis*, may hire a fly for Cheshunt. The nurseries of Messrs. Lane of Berkhamstead, and of Messrs. Francis of Hertford, are also famous for their Roses. In Middlesex—that is to say, in the neighbourhood of London—the best Rose nurseries are those of Messrs. Lee of Hammersmith, Messrs. Fraser, Lea Bridge, and, just out of Middlesex, in Surrey, those of Messrs. Veitch & Sons at Combe Wood and Kingston Hill. Amateurs abound, but the one who produces Roses most accessible to her Majesty's lieges is my friend Mr. Scott, who brings every morning during the time of Roses, and from his garden nigh to Wimbledon, a beautiful display for his desk at No. 1, Old Bond Street. Passing into Buckinghamshire—and the G.W.R. will take you in less than an hour to Slough—you will find there, in the royal nursery of Mr. Charles Turner, one of the best collections of outdoor Roses, and the best collection of Roses in pots to be seen in England; and near to Slough many amateurs, of whom Mr. Hawtrey is chief; and thence, returning to the rail, you may leave the main line at Didcot, and in the suburbs of Oxford, queen of cities, you may find delightful little gardens of Roses most carefully and successfully tended by college servants and others.

Leaving these pleasant gardens, you must make your way back to the city, and ask Mr. Prince, of the Market Street, to show you his nursery of Roses upon the cultivated seedling Brier, and to explain to you the advantages of the system, which he has himself introduced, by those practical illustrations which put an end to doubt. At Worcester may be seen, in the spacious nursery of Mr. Richard Smith, a most complete collection of Rose trees for sale; and in the neighbouring county, and in the King's Acre Nurseries, close to Hereford, the invincible Roses of Mr. Cranston, such as he exhibited last year at Manchester, to the dismay of all competitors, and to the delectation of those who did not compete. And in this picturesque and pleasant shire many amateurs, true lovers of the Rose, such as the Rev. C. H. Bulmer, Rector of Credenhill, an enthusiastic expert, and the chief founder of the West of England Rose Show; the Rev. Berkeley Stanhope, Rector of Byford; and Mr. Jowitt of the Old Weir, who is reported to be the happy possessor of more Rose trees than belong to any other of his unprofessional brethren. In Warwickshire I have seen Roses in their full integrity in the gardens at Leamington, and Messrs. Perkins & Co. of Coventry have been successful exhibitors. In Northamptonshire, Mr. House, of the Nurseries, Peterborough, is a skilful grower of Roses; but I do not remember, despite the numerous votaries of horticulture, any amateur Rosarian of note. So in the adjoining county, Messrs. Wood & Ingram, of the Nurseries, Huntingdon, are the chief representatives of those who delight in Roses; whereas in Cambridgeshire a most accomplished amateur, Mr. Curtis of Chatteris, divides the honours with Mr. Farren of Cambridge, once an amateur, but now a grower for sale, and so proficient in his clever manipulations that he has budded eleven hundred stocks in a day, thus changing by his ledger-dmain the common Brier into a thing of beauty; and in Norfolk and Suffolk the amateurs have undisputed sway—*les trois frères*, the Messrs. Fellowes (one of them—E. L.—of credit and renown in the history of Oxford cricket), true scions of a floral family; and Mr. Nichol, gardener at Dringston Park; and Mr. D. T. Fish, being the lord-lieutenants of Queen Rose. And this is the case in other neighbouring counties; the Rev. Mr. Pochin, Rector of Barkby, taking precedence in Leicestershire; the Rev. C. C. Ellison of Bracebridge, and Mr. Arthur Soames of Irnham Park in Lincolnshire. In my own county, Nottinghamshire, we are well represented in both departments, having two nurserymen—Mr. Merryweather of Southwell, and Mr. Frettingham of Beeston—who grow the Rose in abundant perfection; and a troop of amateurs, of whom I claim, in my venial pride, to be captain, and who may be numbered by hundreds among the working men of Nottingham. In their tiny gardens, nigh unto the town, may be found such specimens of their favourite flower as cannot be surpassed in the world; and you shall see many an artisan with a Maréchal Niel or a Charles Lefebvre in his Sunday-coat almost large enough to run away with him. In Lancashire, Cheshire, and Yorkshire, the only amateur of note with whom I am acquainted is the Rev. C. P. Peach of Appleton-le-Street; but there are prince-merchants of the Roses in the two firms of Dickson at Chester, in Mr. May of Bedale, and in Mr. Harrison of Darlington.

Next comes the inquiry, when is the time of roses? at what hour of the day shall we find them in their happiest phase? They are most beautiful, I think, at sunrise, when the queen of the flowers wears her glittering crown of diamond dewdrops; but where is the man who would rise so early in the morning (saving always the M.F.H., to watch the *début* of his young hounds in the coverts), and who shall venture to sing, “Come into the garden, Maud,” when my lady sleeps her first beauty-sleep, and doors are locked and shutters are closed, and the other inmates might mistake her for a ghost

or a burglar? and the grass would be dank for her exquisite toes, however high and dry she might feel with reference to her lovely heels. And, therefore, I will invite you, knights and ladies both, to view the Roses when, after a bright warm summer's day, the evening sun is low, when the petals, which have drooped in the noontide heat, revive in all the freshness of their charms, and seem to be rejoicing in their thankful rest.

How, in what frame of mind and body, shall you enjoy this time of roses? After a day's good work, whatever your work may be, after a good dinner, with a good conscience and with a good cigar.

My reader has your time among the Roses inspired you with a yearning to have Roses of your own? If so, you may rely upon the instructions following, as the result of thirty years' experience.

Despise not the day of small things. You must learn your notes before you play a sonata. Devote a bed in the best part of your garden, sheltered but not overshadowed, having an eastern or southern aspect, as a throne for the garden queen.

Let the soil be well drained and dug.

Go to the nearest nursery where Roses are successfully grown, and order the quantity which you require from this list:

Alfred Colomb	Madame Lacharme
Baroness Rothschild	Madame Victor Verdier
Charles Lefebvre	Mademoiselle Annie Wood
Duke of Edinburgh	Mademoiselle Eugénie Verdier
Dupuy Jamin	Mademoiselle Marie Rady
Edward Morren	Maréchal Vaillant
Etienne Levet	Marquise de Castellane
François Michelon	Marguerite de St. Amand
John Hopper	Sénéateur Vaisse
La France	Xavier Olibo
Madame Clémence Joineaux	

If this quantity does not satisfy your ambitions, then add:

Abel Carrière	La Duchesse de Morny
Annie Laxton	Louis Van Houtte
Baron de Boustettin	Mademoiselle Marie Cointet
Beauty of Waltham	Mademoiselle Thérèse Levet
Captain Christy	Maurice Bernardin
Camille Bernardin	May Quennell
Countess of Oxford	Monsieur Noman
Comtesse de Serenye	Miss Hassard
Dr. Andry	Mrs. Baker
Duke of Wellington	Pierre Notting
Emilie Hausburg	Prince Arthur
Exposition de Brie	Prince Camille de Rohan
E. Y. Teas	Princess Mary of Cambridge
Ferdinand de Lesseps	Reynolds Hole
Fisher Holmes	Star of Waltham
General Jacqueminot	Thomas Mills
Jean Liabaud	Victor Verdier

To these you must add, for some warm border, backed by a wall, the following varieties of the Tea-scented Rose:

Adam	Madame Villermoriz
Aline Sisly	Madame Nabonnand
Anna Olivier	Madame Welch
Catherine Mermet	Maréchal Niel
Cheshunt Hybrid	Marie Van Houtte
Comtesse de Nadaillac	Monsieur Furtado
Duchess of Edinburgh	Niphetos
Duke of Connaught	Perle de Lyon
Devoniensis	President
Homer	Rubens
La Boule d'Or	Souvenir d'Elise
Madame Bravy	Souvenir d'un Ami
Madame Margottin	

Tell the nurseryman the nature of your soil, and he will judge as to the best stock for your Rose trees. The cost will be about 1s. 6d. each. Plant in November; prune in March. Be liberal with farmyard manure. When the soil is set, keep it open with the hoe. Look out in May for the "worm i' th' bud," and, having him between your thumb and finger, do not wait to discuss with him the pros and cons of capital punishment. Above all, never be disheartened—only learn to labour and to wait, and you shall surely see in your own garden the time and prime of Roses.—*Time*.

Climbing Roses.—Amongst the many things which we have to talk of as being neglected, climbing Roses certainly ought to find a place. Considering their beauty, it is astonishing how seldom one sees anything like a good effect produced by them. This is chiefly owing to an over-severe manner of pruning, which is also wrong as to the season at which it is done. Climbing Roses, well developed and pruned, so as to be a mass of flowers at this season, might form the finest features of gardens at this time of the year, and yet one may see dozens of gardens without ever seeing a beautiful effect produced by a climbing Rose. The best way is to prune after flowering, and not to prune the shoots made afterwards, beyond a little thinning where that is necessary; in other words, avoid winter pruning altogether, then the shoots made in autumn would flower profusely the following year. Apart from giving them good soil, freedom from neighbours that rob them at the roots is as essential

to climbing Roses as to other things. The bowers, arches, and sheets of beauty which might be formed of them are endless, and will, we hope, some day be more commonly seen.—S.

Roses for the North.—It is well known that there are many varieties of the Rose which succeed well in the south that do not thrive in the north. Possibly, therefore, the following list of good sorts that will succeed in the north in unfavourable districts will be acceptable to your readers:—

Alfred Colomb	Louise Van Houtte
Baroness Adolphe de Rothschild	Madame Fillion
Beauty of Waltham	Madame Nachury
Boule de Neige	Mademoiselle Eugene Verdier
Captain Christie	Maréchal Vaillant
Comtesse de Serenye	Marie Baumann
Dr. Andry	Marquis de Castellane
Duchess of Caylus	Miss Hassard
Duchess de Vallambrosa	Mons. Etienne Dupuy
Duke of Edinburgh	Mons. E. Y. Teas
Edward Morren	Monsieur Fournier
Etienne Levet	Oxonian
Fisher Holmes	Sénéateur Vaisse
John Hopper	Star of Waltham
Jean Liabaud	Sir G. Wolseley
La France	Triomphe de France
La Rosière	Victor Vigier

Our soil is heavy and stiff, and the Roses are mostly worked on the Brier. The list includes both new and old sorts that are good growers and free bloomers in such situations.—J. S. W.

FLOWERS FOR HOSPITALS.

THERE is much interest taken in providing flowers for the sick poor, but I constantly hear the time expended in gathering them begrudged. Such complaints certainly emanate from those who do least, as is always the case; but I fancy that if those who make them considered a little, they would come to see that it is a gain of time and flowers to cut them regularly and timeously. Here we cannot afford our gardener's time to be spent on what I can do quicker myself, and therefore I speak from practical experience. Beginning with the earliest blue flowers, viz., *Symphytum caucasicum* and *Anchusa empervirens*, by cutting and preventing seeding we have a longer supply of flowers and are saved the nuisance of seedlings coming up everywhere and through everything, and, like *Papaver orientale*, *Symphytum* roots are not easy to get rid of. *Centaurea* blue and the white *C. montana* should never have a flower wasted, and there will be a second crop in a few weeks. The centre spike of *Lupinus*, *Aconites*, and *Delphiniums* cut before the very topmost buds are expanded ensure a far better crop of side shoots, and in such a season as we have had of wind and rain, had these heavy heads been left, they would have broken down the whole plant or quickly damped off. All agree in the need there is of removing old Roses, and I am sure it is easier to cut them when in perfection and save the litter of fallen petals. I do not believe that flowers last longer in hospitals and in the dwellings of the poor than elsewhere; therefore double Roses should be cut in perfection and not in bud, for they do not expand satisfactorily in water, and have not so much perfume in that state. Single Roses should be sent in bud, but there are few gardens in which these are to be had in profusion. Poppies (*Papaver orientale*, *bracteatum*, *spicatum*, and *nudicaule*, so often called *alpinum*) and all Irises should always be sent in bud, and I have heard expressions of extreme surprise and delight at the sudden expanding of such buds and the unexpected colours exhibited. In short, granted that the old flower-stalks must be removed by some one for the sake of tidiness and the good of the plants, surely it is better that they should never be allowed to reach an untidy and unsightly state. We perhaps lose a great mass of bloom for two days or so, but we gain a good bargain for our charity in the continuous crop of flowers which we reap, and in tidiness and saving in staking and tying.

I have been asked to send Roses and *Rhododendrons* with longer stalks, and the proverb of looking a gift horse in the mouth has flashed through my memory; but I simply declared that for no hospital should plants be hurt, or the germs of new growth for next crop of bloom be taken. Of course, if the arrangers of the nosegays wish to tie up together a 2-in. stalked Rose and a 2-ft. spike of *Lupin*, they will fail. Our *Lupinus* were very fine, but it would have been pure selfishness had the pang of cutting the centres out not been instantly repressed. In the case of shrubs, a succession of flowers can be obtained in the shape of an ungrudging supply of *Ribes*, *Syringa*, and *Philadelphus*, not a bunch taken here and there, but the wholesale cutting over of a bush or two. The flowers of the *Lilac* should be denuded of their pair of young wood shoots, which do not stand in water and needlessly fill up the baskets. I do not deny that we are at the mercy of

the season in the case of such experiments, but we gain more than we lose.

I would strongly advocate once more the importance of always sending pieces of sweet smelling green plants along with cut flowers, such as Rosemary, Thyme, Lavender, and Gum Cistus, all of which retain their aromatic fragrance, and do not shed their leaves readily when neglected. That there is a want of such in the supplies sent is evidenced by the frequent requests for a basket of some sweet green material to mix with the flowers received. The Willow-leaved Sweet Bay (*Laurus nobilis salicifolia*), sometimes called *Oreodaphne californica*, which is smaller and sweeter than the common Sweet Bay, would be very useful. It seems but little known, and is worthy of all attention. A plant in a pot, 1½ ft. high, is very useful; and where standards of Sweet Bay and Laurel in tubs are used, the Willow-leaved kind would be a good addition and an improvement. I have, however, never happened to see it so employed. It makes an excellent wall covering. There are fine specimens of it at Dalkeith Palace and Newbattle Abbey. Mr. Dunn tells me that the dimensions of the plant at Dalkeith are 8 ft. high and 10 ft. wide; it has been where it now grows about thirty years, and would have been much larger, had it not been trimmed to keep it within its allotted space. If *Choisya ternata* proves to be as hardy (standing out such a winter as the past), it would be another very useful hospital evergreen, as, from its very leathery texture, it is perhaps the most enduring aromatic green-leaved plant with which I am acquainted, lasting any length of time in water.

Wardie Lodge, Edinburgh.

F. J. HOPE.

THE STATE OF KEW.

THE following statements, published in a leading article in the *Gardeners' Chronicle*, a journal never otherwise than friendly in its allusions to the authorities at Kew, will be read with some surprise:

"On Bank holiday (Monday) some 53,000 people visited the garden, but for their own protection sake, as well as for that of the plants, it was requisite to keep the houses closed, a walk through them entailing considerable risk from falling glass and falling rafters. Falling rafters! some will say—and think we are exaggerating. Unfortunately we speak the sober truth. It will come as a startling surprise to some to hear that in palatial Kew—our grand national garden—the finest establishment of its kind in the world—the rafters are in some of the houses so infested with dry rot and so rotten that a thrust with a stick suffices to bring them down. We have often had occasion to notice the disreputable and dangerous condition in which some of the houses are, such as the show-house, No. 4, the tropical Fernery, the succulent-house; but the full extent of the disrepair was not brought home to us till a day or two since, when looking round to see what damage had been done by the hail, we were astounded and disgusted at the dilapidated condition into which some of these structures have been allowed to fall. Nor is this rottenness confined to the older houses. In the T range, in the Victoria-house, which have only been built a few years, the rafters are not only rotten, but they are absolutely dangerous to the passers-by, to say nothing of the risk to the workmen on the roof. All this is so surprising, and so at variance with the general excellence of the administration at Kew—which we have, and justly, held up as a pattern Government establishment—that we quite expect our statements will be received with incredulity; but if any doubt let them visit the houses we have mentioned, and see if they will not then agree with us, that the structural condition of some of the houses is a disgrace and a scandal to a great national establishment. The fetters of red tape, and the indifferent insouciance of the Circumlocution Office (not of the officers of the establishment, who can only "represent") are to blame for this condition of things. My Lords, or the Board, or the First Commissioner, or some one, we know not exactly who, is responsible for this disgraceful state of things, which the present disaster at once serves to bring under notice and afford an opportunity of repairing. That in a wealthy country like ours the finest collection of living plants should be allowed to be endangered for the lack of a few pots of paint and a few deals, is an evidence of an amount of ignorance and carelessness on the part of those in authority which we can but stigmatise as disgraceful. For the prevention of railway accidents it has been proposed to make a director or a bishop ride on the engine of every train. To ensure the proper custody of the national property it would seem to need that a Lord of the Treasury or a First Commissioner should pass the night in one of the houses at Kew during such a storm as we have lately experienced.

Pleasant facts these for the public, especially for those who remember the noble liberality of the grant for the garden—

unexampled in any country. It seems hardly fair, however, to blame persons without the garden for the rotten state of houses "built a few years ago," and which must have been constructed with the approval of the garden authorities. Such statements as the foregoing are instructive when considered in relation to the aim, use, and enormous cost of these vast glass sheds, which are quite useless as regards our home wants, and not at all so important, even as they once were, in illustrating the vegetation of foreign lands, which through speedy intercommunication may be said to be now brought much nearer to us than they at one time were.

The Late Hail-storm.—I hope that something will be done to raise a subscription in aid of the sufferers in the Ealing, Brentford, Richmond, Isleworth, Kew, and Twickenham districts through the late storm. Mr. Hawkins, of Bayswater, has a large glass nursery, and his loss from broken glass and damaged plants is set down at something near £1000. Mr. H. B. Smith, Ealing Dean Nursery; Mr. Lane, the Grove Nursery; Mr. G. Weeden, St. John's Nursery; Messrs. Waylett & Son; Mr. Smith, Chapel Road Nursery, &c., are all heavy sufferers. The last four, who are jobbing gardeners and small florists, feel their losses heavily. Many jobbing gardeners, who have put up a little glass, have lost plants as well as glass, and these especially need assistance. At Brentford, Mr. T. Petridge, of the Boston Park Road Nursery, the well known grower of variegated Pelargoniums, is a heavy loser—indeed, well nigh ruined. I am doing what I can to awaken local interest on behalf of these cases, but it is desirable that a public effort should be made, as in the case of the hail storm of 1876; for owing to the adverse character of the season and the slackness of trade, many of the small florists are less able to bear their losses than they otherwise would have been. I know of some who would gladly form themselves into a committee to ascertain damages and administer relief, were any moneys forthcoming for the purpose. Assistance is really urgently needed; and remembering the generous response made in 1876, I trust that a similar feeling will be manifested on this occasion.—RICHARD DEAN, *Ranelagh Road, Ealing, W.*

TREES, SHRUBS, AND WOODLANDS.

CAMELLIAS IN THE OPEN AIR.

AFTER the late long and severe winter, a few words as to how our open-air beds of Camellias are looking may not be without interest to those who contemplate giving these lovely plants a trial out-of-doors. Camellias are at all times, when clothed with healthy foliage, beautiful objects to look upon, and of the beauty of the flowers and the variety of their colours it is difficult to give an adequate description. How to grow Camellias in perfection under glass has so often been discussed that I only need now call attention to planting good healthy plants in open-air beds in soil consisting of the top spit from an old pasture. Our soil is a moderately strong clayey loam, very much mixed with broken stone, locally called hassock, a soil that suits Apples, Pears, Peaches, and other fruit trees admirably. In this, when well mixed with leaf-mould or any gritty substance, Camellias grow luxuriantly, but, like the Grape Vine, although it is by no means an uncommon thing to see them dead or languishing under glass, one seldom finds one planted out-of-doors that does not grow freely in any kind of soil. Although green vegetables were severely cut by the frost last winter, and Myrtles and similar tender shrubs looked as if scalded, yet our Camellias continued as luxuriant as possible, and not a single bud dropped. On the contrary, every terminal growth was set with two or three very fine buds. Of course the usual plea will be set up that this is a favoured part of England as regards climate, but there are hundreds of places equally as favourably situated. I may remark that our very best plants stand in fully exposed situations on almost the highest ground that we have, while those planted against walls or under the shade of trees are by no means so luxuriant. I do not wish it to be inferred, however, that the Camellia is suited for exceptionally cold districts, where the thermometer runs down to zero; but our plants were exposed to all the frost that we had this winter, the ice close by them being from 6 in. to 8 in. thick for weeks, and the thermometer in very sheltered positions ranging from 10° to 17° of frost every night. I may add that Laurustinuses were much browned, so that any one who can grow Laurustinus out-of-doors may safely plant Camellias. Spring frosts are destructive to the opening blooms, but as in many gardens it is not thought too much labour to protect Tulip beds and Roses for exhibition from the inclemency of the weather, it is surely not too much to expect that a little labour might be bestowed upon

a flower that is in some respects unexcelled. I feel sure that hitherto Camellias have oftener suffered from coddling than from any other cause.

J. GROOM.

WOODLAND WORK FOR THE END OF AUGUST.

EVERY operation preparatory to the planting season should now be vigorously carried on. The unkindly state of the land, consequent upon the continuous wet and cold weather of the spring and summer, renders it doubly necessary that during the present season draining, trenching, and holing or pitting should be well in hand. In order to facilitate the escape of water from the over-saturated soil, all open ditches and water-courses in the woodlands should be well scoured out and have their sides closely brushed, so that no impediment to thorough drainage may be interposed. Much of the mischief done to trees even in well established plantations arises from a neglect of this precaution. Instead of the ditches being deepened year by year as the roots of trees strike lower, they are too often allowed to fill up; and the result of this neglect is a slow growth of very inferior timber, especially upon the heavy clay soils which are to be found in various parts of the country.

The transplanting of large evergreens may now commence. Before uncovering the roots of these, see that every preparation is made for their speedy removal and replanting. At this season of the year the great secrets of success are quick transplanting, careful handling, warm weather, and sufficient moisture to start the growth but not to chill the roots. Great diversity of opinion prevails as to the necessity for pruning or foreshortening the head of a transplanted tree of the deciduous kind. This is supposed to be necessary in order to adapt the requirements of the head to the power of the roots, some of which must necessarily be injured, and all more or less temporarily paralysed, by the removal. The head and roots being correlative parts, the healthy growth of a tree must depend very much upon the maintenance of a proper balance between the two; so that when the latter become much lacerated and have to be cut back closely, some foreshortening of branches may be desirable. The maintenance of this equilibrium is more desirable and perhaps more necessary in young trees than in those of larger growth; for after the age of about twenty years the quantity of coagulated sap stored up in the trunk, and awaiting the first influences of spring to put it in motion, makes the tree more independent of immediate root action.

The advantages of early transplanting are many and great, for after the period of the fall of the leaf, though the growth of the season appears to be ended, it is found that as long as the soil remains warm, new fibres are found in it, and through the influence of these and the small amount of evaporation that takes place from the plant during the winter months, the roots become turgid with the accumulated moisture, so that the first warm days and showers of spring cause the tree to start off at once into vigorous growth.

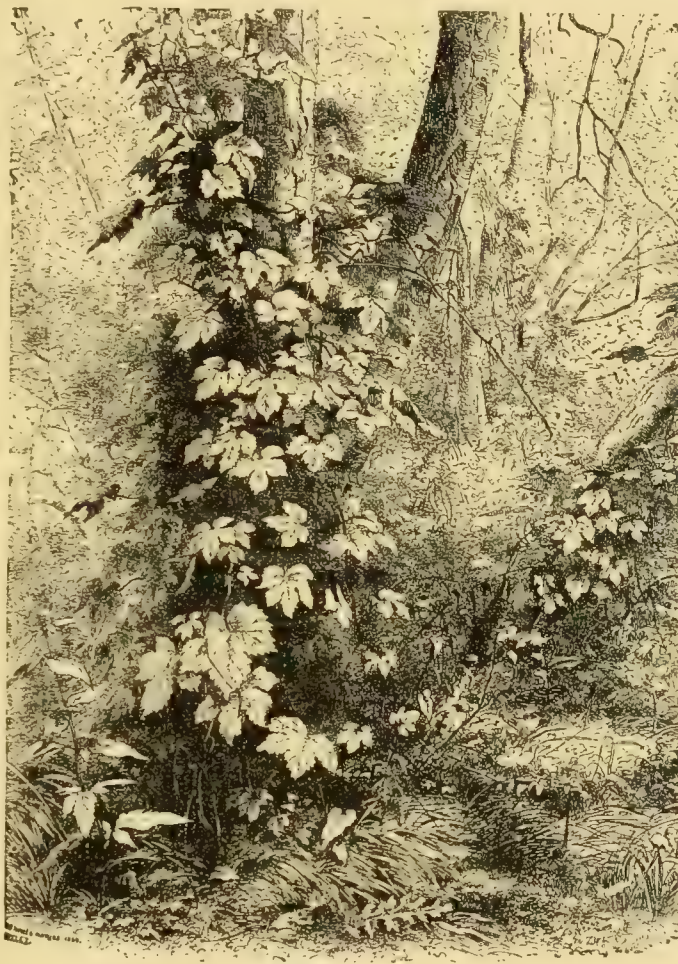
If the head of the tree must be pruned for successful transplanting—and I am by no means inclined to think that this is necessary in the majority of cases—this operation is best performed at the time when the trench is opened out around it and refilled with compost. Action and reaction may thus be equalised. The cause of trans-

planted trees becoming stunted in their growth and attaining an early maturity in their new situations must be either improper treatment before removal, unskilful handling during the operation, or after neglect; or it may arise from unsuitability of soil and situation. An Oak removed into a deep oam with a clayey subsoil; an Elm or an Ash placed in a loamy gravel; or a Beech put into a calcareous gravel, resting upon chalk, will suffer little, if any, from the transplanting. One great source of mischief is placing the roots too deep in the ground, beyond the reach of the necessary heat and the proper action of the atmosphere. Those trees which have been frequently removed in the nursery generally suffer the least from transplanting.

A. J. BURROWS.

The Common Hop as a Climber.—Nothing gives the vegetation of our northern climate a more sub-tropical aspect than

graceful climbers. Even the common Hop, as represented in the accompanying illustration, makes a capital plant for the purpose if allowed to ramble unmolested. For planting in woods, pleasure grounds, &c., it is admirably suited, as the rich vegetable soil generally found there, and the shade afforded by the trees, conduce to the development of ample foliage and long twining shoots. There are other hardy climbers, too, which could be used with equal advantage, such as *Apios tuberosa*, a North American plant of the Pea family, that bears reddish flowers with a perfume similar to that of Violet blossoms. The common *Tamus* (*T. communis*) is a pretty plant for a similar position, as is also the *Tamus-like* *Hablitia* (*H. tamnoides*), a plant of rapid growth, and one which is covered for some weeks in summer with a profusion of small blossoms produced in dense racemes. The Cucumber family also yield some graceful climbing plants, for besides our native *Bryony* (*Bryonia dioica*), there are *Echinocystis lobata* and *Thladiantha dubia*, both hardy and vigorous-growing plants. Several of the species of *Smilax* are quite hardy enough to admit of being grown in sheltered woods, and very pretty climbers they make when well established. The kinds best adapted for such purposes are *S. aspera*, *S. hastata*, *tamnoides*, *S. mauritanica*, and *S.*



The Common Hop as a Climber.

excelsa. *Aristolochia Siphon*, as well as *A. tomentosa* and *A. altissima*, should always be included, as they will grow anywhere, but nowhere better than in sheltered shaded places. The Canadian Moonseed (*Menispermum canadense*) is another pretty plant, and one which has a charming appearance in early summer when covered with its long racemes of white feathery blossoms. *M. dauricum* is a kind not sufficiently known at present to speak correctly of its merits, but probably it is as desirable as its congener. *Schizandra coccinea*, a plant belonging to an allied family, and similar to the foregoing Moonseeds in appearance, is also well worth notice, as its small fruits, which are bright red, have a pretty effect. These are but a few of the many plants that could be advantageously used to beautify trees that may happen to have naked trunks in ornamental woods or in the wild garden.—W. G.

Big Trees.—There is at present on exhibition in New York a section of an immense tree which has been brought from California. The *New York Herald* says: "This wonderful specimen of Nature's handiwork was discovered in 1874. It was growing in a grove near

Tule River, Tulare county, California, about seventy-five miles from Visalia. Its top had been broken off, probably at some remote period, and when discovered it was still 240 ft. high. The body of the tree where it was broken was 12 ft. in diameter, and had two limbs measuring respectively 9 ft. and 10 ft. in diameter. The trunk measured below 111 ft. This ancient monarch of the forest is called "Old Moses," after a mountain near which it stood. It is supposed to be 4840 years old, and it is the largest tree that has ever been discovered. The section on exhibition is 75 ft. in circumference, and 25 ft. across. It is capable of holding 150 people in its interior. The interior, as it is now fitted up, is arranged like a drawing room. A carpet has been laid down; there is a piano, sofa, tables and chairs, with scenes from California hung round, and people move about quite freely.

BLUE-FLOWERED HIBISCUS.

(*H. SYRIACUS CELESTIS*.)

OUR gardens contain, perhaps, no hardy flowering shrubs—certainly none of the deciduous section—which are more strikingly beautiful than the different varieties of *Althæa frutex*, the *Hibiscus syriacus* of botanists. They are perfectly hardy, they are very floriferous, they run into numerous well-marked varieties, and their flowers are in all cases exceptionally showy, so that there are few subjects that can be more safely recommended to the planter, and that may be more satisfactorily introduced to prominent positions in the shrubby borders. We have said that they run into numerous varieties, and we find in the catalogue of MM. Simon-Louis upwards of thirty recorded by name, many of them being double-flowered; while M. Lavelle, in the *Arboretum Segrezianum*, remarks that the garden varieties are many.

Beautiful as are the old familiar sorts—that, for example, with white flowers having a deep purple crimson eye—they are eclipsed by this charming blue flowered variety of *H. syriacus*. We have seen it blooming during the past year or two in the nursery of Mr. A. Waterer, at Knap Hill, and have always found it most strikingly attractive; the colour, which sets off the richly coloured eye to much advantage, being one which is generally admired. It is called *Céleste*, or in the latinised form *celestis*. It forms a free-growing plant, in habit and foliage resembling the other cultivated forms, and is remarkably free in producing its flowers. These are large and well expanded, of a beautiful cerulean blue, the purple-crimson eye remarkably rich, and radiating outwards towards the margin. Everybody who has a place for a choice hardy flowering shrub should plant this, and those who do so will not be disappointed.

Another very fine variety which we have also noticed at Mr. Waterer's is the *H. syriacus totus albus*, a pure white flower, and perhaps the most floriferous of all, the branches being thickly studded, throughout their whole length, by the very distinct looking flowers, which are attractive from their unblemished whiteness. Young dwarf plants flower copiously, and would no doubt form useful subjects for being gently forced into bloom in spring for conservatory decoration.

The two varieties here noticed are comparatively novel, or at least little known in this country, but they both deserve to be widely and extensively cultivated.—*Florist*.

Philadelphus Gordonianus.—This is a most useful and beautiful flowering shrub, one that should be in every collection, especially where there is a demand for cut flowers for filling vases or for bouquet making, almost rivalling, as it does, Orange Blossom in purity of colour. Some object to the common *Philadelphus* on account of its strong scent. The bloom of this is much larger, and it does not possess such a large amount of perfume. To those who have not yet grown this fine shrub I would say give it a trial. It will succeed in almost any soil as a bush. A few days ago I saw a plant of it growing as a standard, a form in which it had a good appearance.—*J. C. F.*

Syringas.—The following is a list of the species of *Syringa* recognised by M. Decaisne:—*A. Eusyringa*: flowers funnel-shaped. 1, *S. vulgaris*, Central Europe; 2, *S. oblata*, China; 3, *S. Emodi*, N.W. Himalaya; 4, *S. Josikea*, Hungary; 5, *S. villosa*, N. China; 6, *S. pubescens*, Turczan; 6, *S. chinensis*; 7, *rothamagensis*; 8, *S. dulcis*; 9, *S. correlata*; 10, *S. Lilas Varin*, Lilas de Rouen; 11, *S. persica* var. *α laciniata*. B. Sub-genus *Ligustrina*: flowers rotate. 1, *S. amurensis*, Mandshuria; 2, *S. pекinensis*, China; 3, *S. japonica*, Japan; 4, *S. rotundifolia*, Mandshuria.

Deutzia crenata in Shrubberies.—This makes a beautiful shrub, and at this season is very useful for furnishing cut

flowers, its pure white blossoms being well adapted for decoration. It also makes a good single specimen on the grass. Some of the old flowering wood should be cut out annually, to allow space for young vigorous shoots that spring from the base, and which produce the finest display of flower.—*J. G.*

THE FLOWER GARDEN.

INSECTIVOROUS PLANTS.

By G. B. CORBIN.

Few, especially those who have visited the New Forest, are unacquainted with the insectivorous properties of the Sundews (*Droseraceæ*), and the tenacity with which the viscous matter exuding from the glandular hairs, with which the leaves are encircled, entraps and holds the unfortunate insect that comes within reach. These are not of the smaller kinds only, but sometimes—as my friend the Rev. H. M. Wilkinson informs me—insects as large as a dragonfly are caught, and their juices assimilated to the plant's well-being; or, again, the Butterwort (*Pinguicula*) acts in a somewhat similar manner; whilst in the water the Bladderwort (*Utricularia*) has an equally wonderful property of entrapping small water-slugs and insects, and, as Mr. Darwin propounds, thrives upon such fare. Certain it is that small creatures are often found inside the bladder-like processes with which the last-named wonderful class of plants are provided; but how much the presence of the insects in such a situation contributes to the plant's well-being I leave for others to judge. In the case of the Sundews it is very evident that the plant absorbs or digests the softer portions of the imprisoned insect, as the dried and rejected skeletons may sometimes be found almost covering the leaves, and the so-called digestive properties of the plant may be proved by placing one insect within its grasp, and killing another insect of the same species and placing it out of reach on some object near. It will be seen that the insect upon the Sundew is skeletonised and sucked dry in a comparatively short space of time, whilst the other dries in the same manner as our cabinet specimens. In the instances above cited the insects seem to have been the unwilling prisoners of the plants retaining them; but other instances have come under my observation where the insects appear to have voluntarily settled upon the plant and died.

A few years ago I saw a plant in the New Forest, some species of Dead Nettle, with many insects attached to its leaves; and last year, in Devonshire, I saw a somewhat similar occurrence, only that the plant was, I believe, akin, to the Mullein. The leaves of the plants in both cases were beset with vegetable hairs, and the insects might have been partially detained by them, but they were as perfect as any in our cabinets. But the most remarkable instance, which induced me to begin this note, came under my observation last July, as follows:—I was strolling in the meadows by a broad ditch where an abundance of plants common to such situations were growing, as Figwort (*Scrophularia*), Hemp Agrimony (*Eupatorium*), Mugwort, (*Artemisia*), &c., and my notice was attracted to the number of flies that were settled upon the last-named plants; and on making a closer inspection I was surprised to find most of the insects were dead. These were attached to the plants in various situations, but in many, if not in all cases, the insect seemed to have settled thereon from choice; some had clasped the points of the leaf, whilst others seemed to hold the smaller stems of the branch in their embrace. Many of the insects were quite perfect, but others were broken from the motion of the plants caused by the wind. At first I thought the smell of the plant had attracted and killed them; but has it ever been proved that this plant is in any way poisonous to insect life? The most remarkable part of this case is that the insects were to be seen only upon the Mugwort, and this only for about 5 yards or 6 yards in extent, whilst other plants growing in the vicinity were free from them. It is true I saw a few scattered individuals upon plants of Mugwort outside this "charmed circle," but within the space above indicated I saw thousands of defunct Diptera and other insects. I picked some portions of the plants, and showed them whilst fresh to Mr. Wilkinson, who, no doubt, can vouch for the correctness of what I describe. It must be understood that the insects I saw had not died from the attack of a fungoid growth such as we sometimes see, but they appeared to be quite fresh, and for the most part perfect. Has any other similar occurrence come under the notice of other readers of the "Entomologist," and if it has, what cause, or combination of causes, was supposed to have led to such an effect? I may mention that the majority of the insects I saw belonged to the yellowish-brown looking creature (*Scatophaga stercoraria*) so commonly found on cow manure, and the like; but this to me was not so very peculiar, since the insect must be as common, or even commoner, than any other in a locality where cattle were continually grazing.—*Entomologist*.

Funkia Sieboldi.—The Funkias are plants remarkable for their various kinds of variegation and markings. They will grow in any soil, and the cooler it is the better. Many of them have a noble, I may say a tropical appearance, *F. Sieboldi* being, perhaps, the noblest of all. It is just the kind of plant for grouping and massing in parks and similar places. In short it may be said to be a truly regal plant. Most of our fine hardy herbaceous plants are ineffectual, from only being seen dotted about as single specimens. Were the grouping and massing of such plants as the above adopted more generally in our parks and public gardens the result would be much more satisfactory than the filigree work called carpet bedding, which detracts from that boldness and dignity which parks and public gardens should possess. There are numbers of plants such as the above which if looked up and appreciated would render such places independent both of carpet beds and sub-tropical plants.—THOMAS WILLIAMS, Ormskirk.

The Shield-leaved Saxifrage (*S. peltata*).—The shield-like form of the leaves of this plant is unique amongst Saxifrages. So distinct is *S. peltata* in this respect that some have referred it to a section under the name *Peltiphyllum*. It grows about a yard high and as much or even more across, and is a remarkably bold and handsome plant. Its leaves, which arise from a very thick and fleshy creeping rootstock, have stout erect stalks, on the apex of which the target-like blade of the leaf attains a foot or more in diameter. The flowers, which are produced in spring a little before the leaves make their appearance, are borne on stalks from 1 ft. to 2 ft. high in loose clusters from 3 in. to 6 in. in diameter. They are individually about $\frac{1}{2}$ in. across, of a white or very pale pink tint. This Saxifrage is a native of California, where it is found



The Shield-leaved Saxifrage.

growing in the neighbourhood and in the beds of quick-running streamlets throughout the Sierra Nevada, from Mariposa to the head waters of the Sacramento. In cultivation it succeeds best in a deep moist border, consisting chiefly of peaty soil. It may be easily propagated by means of division or seeds, which, in some seasons, are produced in abundance. The plant from which the annexed illustration was prepared, is growing in Mr. Wilson's garden at Weybridge, where it has for some years formed a very conspicuous and attractive object. As an instance of its water-loving propensity it may be stated that it is thriving admirably with other aquatic plants on the Wilson Raft, of which a representation has already been given in THE GARDEN.—W. G.

Utilising Dead Tree Stumps.—When a tree in the dressed grounds or shrubberies dies from any cause, a good way of turning it to account is to saw off the small spray-like branches and leave all the forked strong growths; then loosen and enrich the soil at its base and plant Ivy, Honeysuckle or Clematis, training them up until they reach the forked branches, when they will take care of themselves. By this means any one may soon possess large Ivy-clad stumps who might object to its growing on healthy specimens. In shrubberies climbing plants may by this means be turned to good account.—J. G., Linton.

Auriculas and Mealy Bug.—I am grieved to see that Mr. Douglas states that many collections have been attacked by mealy bug. Surely Auricula growers will have to "cave in." The woolly aphid is bad enough, but when to that is superadded mealy bug—a most frightful pest in our greenhouses and stoves—their lot is hard indeed.—V.

THE FRUIT GARDEN.

THE STRAWBERRY CROP.

THOUGH this has been heavy and the fruit well grown and coloured, it has lacked that rich brisk flavour which is so peculiar to it—a result entirely due to the excessive rains that have aided to produce fruit more than usually succulent, but with a consequent deficiency of quality. Absence of sunshine has not, however, materially affected the colour. It is a fact proved over a dozen times this very cloudy, dull season, that some of the richest coloured fruits gathered have been those from which the foliage entirely excluded the light. Given a kind remarkable for richness of colour, such as Sir Joseph Paxton, or Lucas, or Empress Eugénie, and the colour has been there, even though the fruit was buried amongst leaves and Grass. The prices of Strawberries in the market have been low this season, as far as growers are concerned; but quantity has made the crop a fairly paying one, and there has been less occasion to gather hurriedly, as the weather has been cooler and the fruits have kept longer. This season runners should be produced in abundance, and the crowns formed by the plants for next season should be strong and robust. Thus more perhaps for the Strawberry than for any other fruit the season has been fairly favourable. In most gardens it is the practice to grow several kinds, not only in order to have a lengthened supply of fruit, but also to obtain variety of sort and flavour. All Strawberries in their way are good, but some are better than others: therefore there is wisdom in growing a good number, as the space occupied need not exceed that required for the production of the same quantity of any one variety. Of sorts which I have grown, perhaps the very earliest is La Grosse Sucrée, a free fruiting kind, the colour of which is rather pale, and in shape longish; its flavour is but of medium quality; it is a kind to grow only for the securing of the earliest fruit in the open air. Then comes that universal favourite, Vicomtesse Héricart de Thury, one that is remarkably prolific and early, and which produces first-class fruit as regards colour and flavour, though not so large as is seen on later kinds; it is a grand Strawberry to grow for early crops. Premier is a fine kind, rich in colour, good in quality, and a large cropper. This sort is remarkable for the erect character of its flower-stalks, the bloom being lifted above the foliage, so as to almost hide it when expanded. When in fruit this is also well kept from the ground, and therefore clean. It may well be classed as a first-rate kind for garden purposes. Sir Joseph Paxton is perhaps the most popular of open-air market kinds. It is not only very prolific, but the fruit is large, handsome, of a deep rich colour, and of good flavour. Specially is its colour a recommendation in the market, but it is a good kind for every one. President is one of the best known kinds, and, though less deep in colour than Sir Joseph Paxton, it is nevertheless largely grown for market, especially under glass. It will be long regarded as a first-class kind. Lucas is less known, but nevertheless a grand sort; the foliage is large, of the old Keen's Seedling type, and is shorter in the stalk than most other kinds. It is a very free fruiter, and a late mid-season sort. The fruit is deep crimson-red in colour, roundish, brisk-flavoured, and luscious. It is well deserving of much more extended cultivation than it now receives. Very widely grown is Sir Charles Napier, and by many largely for late pot culture. It is one of the best of travellers, and thus for market work enjoys a good reputation. The fruit is pale red, longish in shape, and sharp in taste. Those who demur to a sweet Strawberry—and tastes differ greatly—will find in Sir C. Napier a Strawberry to their liking. If I were to recommend specially a Strawberry for cottagers it would be Amateur, as it is without exception the most prolific of all others. As a rule, it produces double the crop commonly found on other kinds, and, although it is perhaps too sharp in flavour for the dessert, it is a capital Strawberry to grow for preserving. It is no unusual thing to see a couple pounds of fruit upon a single stool. Dr. Hogg and the Rev. W. F. Radcliffe are well-known representatives of the British Queen strain, producing large richly flavoured fruit, not always well coloured, and as a rule not too freely. These are kinds to be grown where high-class fruit are specially appreciated. Frogmore Late Pine is another of this high-flavoured section, somewhat shy as a fruiter, but producing perhaps the most deliciously flavoured fruit of all. The peculiar old Pine flavour is well exemplified in this sort, and, as it is a late kind, it ought to be in all collections. To the last I have reserved Empress Eugénie, because I wish to commend strongly this kind, not only for common garden culture, but also, if there be such a place, for the wild fruit garden. It is the very best of all kinds to plant down thickly in some out-of-the-way spot where it can grow just as it likes to produce immense quantities of delicious deep red-coloured, medium-sized fruit for the delectation of children and if desired birds. If it were the rule to have some breadths like this in the nooks and wilds that often surround gar-

dens, they might tempt birds to keep to them rather than attack the garden fruit. In any case, to grow a crop for the free use of children and others in the way indicated, Empress Eugénie is the best of all. Laxton's Pioneer comes with a good reputation as a rare kind. If it is worthy of a place amongst the last half-dozen sorts it is good indeed.

A. D.

A PLATE OF PEARS.

WHETHER we consider its delicious flavour, easy culture, and excellent keeping qualities, or its long-continued supply of beautiful fruit, the Pear in its many varieties may justly lay claim to the title of the fruit *par excellence*. To obtain it in perfection, it should be picked from the tree as soon as the fruit has attained its full growth, and just as it begins to turn from green to the ripening condition. When left beyond that period the ripening process goes on in favour of the seeds, and the quality rapidly deteriorates. A Pear ripened on the tree is not fit to be eaten. Even a day or two too long in the summer varieties renders it dry, flat, and insipid. Autumn and winter fruit, after gathering, which it is desired to keep any length of time, is best preserved in barrels or, better, in boxes, containing about a bushel, in a cool or cold, dry place. When desired for use, to ensure its highest perfection, it should be ripened in a dark, dry place in a moderate temperature, and rigidly excluded from the air. Proper thinning on the tree is an essential point in obtaining well-conditioned fruit, and placing it between layers of flannel is a secret in developing colour and flavour that is worth knowing. A Pear should never be eaten warm. Cooled in the refrigerator in summer and eaten at a temperature between warm and cold in winter, it is perfection, and those who have never tasted some of the finer varieties under these conditions have a pleasing lesson to learn. There are Pears and there are Pears. The average consumer, generally speaking, is acquainted with but a few of the commoner varieties to the exclusion of the really fine sorts. The Seckel, Bartlett, Lawrence, Howell, Flemish Beauty, Belle Lucrative, Sheldon, Duchesse, and Beurré d'Anjou, are perhaps the best known and most saleable market varieties. These, at least the majority of those mentioned, are but the lower grades of this really delicious fruit, and no more compare with many of the finer sorts than a Crab or a Gilliflower Apple does to a Spitzenburg or Northern Spy. The Seckel and Bartlett both have a pronounced musky flavour. They suit the average American taste because they are sweet and strongly flavoured. Their popularity, as that of most of the above sorts enumerated, is also, no doubt, largely owing to the fact that only comparatively few are acquainted with the better kinds, and are, therefore, unable to establish a comparison. While many really excellent varieties have originated in this country, the French and the Belgians must be credited with the majority of the really superior kinds.

Summer Varieties.

Beginning with the summer sorts that rank high in the gamut of taste, the Petite Marguerite, recently introduced in France, is especially deserving the attention of the amateur. Its juicy and vinous flesh and delicate *bouquet*, all entitle it to a place in the well-regulated private orchard. It is not large, a trifle larger than the Seckel, but large enough, according to the writer's taste, for a dessert Pear. Of the larger summer Pears, the Clapp's favourite, originated in this country, and a cross between the Bartlett, an English variety, and the Flemish Beauty, a Belgian sort, should not be overlooked. It is entirely free from the muskiness of its English parent, and, considering its size and other really fine qualities, one might look much farther and fare worse. It is said to rot at the core too quickly. This is obviated to a great extent by early gathering. Of the many other summer sorts, the handsome red-cheeked Beurré Giffard, the Rostiezer, a vinous, high-flavoured sort, comparatively a stranger to American collections, and last, but not least, the Tyson, which is much better known, bring up the rank and file among the very early Pears. With the change from the hot summer weather to the mellow and cooler days of autumn, we at once note a difference for the better in the quality of the fruit, which seems to become imbued with the vinous richness of Nature's harvest season, autumn sorts having more character, piquancy, and flavour. Of this class it is an extremely difficult matter to choose between several varieties. Whoever has been fortunate enough to taste a Beurré Superfin, fully matured, ripened to a nicety, and glistening in its bright, smooth, oily skin, need look no farther for the acme of perfection in the Pear. It is as juicy as a Peach, and fully merits its appellation "superfine." Like many good things it will not keep long.

Autumn Sorts.

Among autumn Pears, the Urbaniste, a Belgian sort, is second to none. It is one of the acidulous kinds, like the Superfin, of good size, melting, very juicy, and of most exquisite flavour and perfume,

strongly resembling attar of Roses. This particular aroma is always very pronounced. The *bouquet* has been described as the "soul" of wine, and this characteristic odour in the Urbaniste is one of its chief attractions. The aroma which gives the character of the fruit in many varieties of Pears lies just below the skin as in the case of the Urbaniste; in others it is contained in the entire juices of the fruit. If the Urbaniste and Beurré Superfin are entitled to a top-most place, Gansel's Bergamot, an old English variety, certainly deserves equal prominence. It is a profuse bearer, a medium-sized Apple-shaped, russety fruit, melting, and of a most rich and sprightly sub-acid flavour. It is to autumn Pears what the juicy and highly-flavoured Gravenstein is to the autumn varieties of Apples. Being difficult to grow it rarely finds its way even to private tables and is unknown in market. Poor growing sorts like Gansel's Bergamot are rendered tractable by being re-grafted, or, as it is termed in nursery parlance, "double worked," on strong growers. Sorts like the Gansel's are worthy of any trouble to obtain. The Louise Bonne of Jersey is an acidulous Pear, tolerably well known in this country, that never fails to please a person of that taste, carrying its tartness as far as possible without absolute excess. But its good qualities are sadly counterbalanced in this climate by its apparent tendency to blight. The Louise Bonne is recommended by its vigorous and handsome growth of tree and its productiveness. The fruit is elegant in form, beautifully coloured, the flesh melting and overflowing with refreshing vinous juice. Nevertheless, in point of quality, it does not reach the very high flavour mark of the Gansel's Bergamot, Urbaniste, or Beurré Superfin. A well known Pear is the White Doyenné or Virgalieu of the French. It is without doubt the handsomest coloured Pear grown, being as rosy-cheeked as a Lady Apple. Of late years the fruit has cracked badly with us. The White Doyenné is distinguished by a certain perfume possessed by no other variety. Although regarded as adapted to most every one's taste, it is lacking in the vinosity which to a trained palate is generally considered one of the essential virtues of the really superior sorts. The Sheldon, a large round, golden-russet fruit of Western New York origin, previously referred to as among the best known varieties in this country, when well grown and well ripened, is usually regarded as deserving a place among table fruits of the first order of merit. It is a general favourite with those who are partial to the honeyed sorts. Like some others it has a slight suspicion of muskiness, and, as reviewed from our individual point of taste, lacks the "snap" that is essential to complete the harmony of a perfect Pear. The Seckel, a household word amongst American fruits, is too well known to need description. Its honeyed sweetness and its marked flavour, recalling that of Mosel-Muscatel, are usually objected to by connoisseurs, although it finds favour with so high a pomological authority as Mr. Thomas. Dana's Hovey, one of the vinous sorts, which has recently made its bow to the pomological public, is highly extolled in Massachusetts, where it originated. It has been little fruited in this vicinity, and we are personally unacquainted with it except by favourable reputation. The Duchesse, a deservedly esteemed market sort, would be of great value for the private orchard, were it not that there are so many other superior kinds to choose from. Nevertheless, its great size, splendid golden colour, and good qualities, will always entitle it to be called a noble fruit. Not to mention the Bonne du Puits-Ansault, a comparatively new French variety among the autumn Pears, would be a glaring oversight. One needs but to have once tasted its delicious, melting, and sprightly sub-acid flesh to accord it a foremost place in the galaxy of *ne plus ultra* Pears. The amateur cannot afford to do without it. This variety does best as a standard. Dr. Reeder, a recently-introduced Pear, originated by that gentleman at Varick, and disseminated by Ellwanger & Barry, is one of those good things that come done up in small packages. With its small, roundish, ovate form and bright golden skin, netted and sprinkled with russet, combined with its exquisite, fine, juicy, and vinous flesh, it has scarcely a superior as a dessert fruit. For the amateur it is a veritable treasure trove. Of the claims of the Beurré Bosc to pre-eminence as a table fruit, we do not agree with even so eminent an authority as Mr. Downing, who is particularly partial to this handsome representative of the Calabasse type. It is high-flavoured and delicious, but is rather lacking in juice, and it does not possess that acidulousness to which we have previously referred as one of the great desiderata. It is, however, the *beau idéal* of shapeliness. The Beurré Bosc, in particular, requires to be very ripe to call forth its good qualities.

Winter Pears.

We now come to the winter varieties, of which the Beurré d'Anjou is, perhaps, the most popular. This is a variety, all things considered, that we cannot do without; its size, flavour, and excellent keeping qualities, all render it worthy of a foremost place in the catalogue of desirable fruits. Among the winter sorts "of name and noble estimate" is Winter Nelis, a

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favourite Belgian sort, that makes up in quality what it may lack in form and general appearance. It has a great deal of individuality, its melting, buttery flesh being characterised by a certain spicy, nutty aroma, peculiarly its own. It always comes into admirable play as a winter table fruit. Those who regret the poor keeping qualities of the Superfin can console themselves later in the season with the Easter Beurré, which is of a similar piquant flavour. In keeping qualities it has no superior. In France, and in this country among careful growers, it attains a very large size. Its good qualities as a fruit are offset in a measure by its slow habit of growth, its tendency to blight, and its only thriving in the best of soil and under careful treatment. In spite of these objections, it is a *sine qua non* among winter sorts, and to every really choice Pear garden. Easter Beurré is best cultivated on the Quince. Last but not least among the desirable varieties for the amateur is the Josephine de Malines, without doubt the most valuable late-keeping Pear. For this great acquisition we have also to thank the Belgians. Its skin is of a pale yellow, and its flesh a light salmon colour, and of a most delightful rose flavour, similar to but not so pronounced as the Urbaniste. Of comparatively recent introduction into this country, it is scarcely known in market, but is prized beyond measure by those who are acquainted with it. The Josephine succeeds both as a dwarf and a standard. There are many other excellent sorts that, if not fully equal to those enumerated, are still eminently deserving of notice. Tastes differ in fruits as in wines. But there is an acknowledged standard of excellence in both that meets the general taste. Judging from this standpoint, the varieties referred to above as possessing the cardinal virtues comprise the very best among the table sorts, and are amply sufficient for an abundant variety in the largest and most carefully selected orchard. Except where otherwise noted, all are suitable for cultivation as dwarfs. Our remarks are confined to private gardens only, where quality is desired, even if it be largely at the expense of quantity. But in a well-cared-for fruit-garden, with proper treatment, the poorest bearers may be made, if not to "blossom as the Rose," to "give forth their fruit in due season" in comparative abundance.

Summing Up.

To sum up, with the Petite Marguerite, Favourite, Rostiezer, Beurré Giffard, and Tyson, of the summer sorts; the Beurré Superfin, Urbaniste, Gansel's Bergamot, Bonne du Puits-Ansault, Dr. Reeder, and Louise Bonne among the autumn varieties; and the Beurré d'Anjou, Winter Nelis, Easter Beurré, and the Josephine among the winter sorts, the amateur can revel in a succession of the finest of fruit from early summer till early spring. In conclusion, it may be interesting to know the individual tastes of the six leading American pomologists of the day as to table Pears, quality of the fruit alone being taken into consideration. Mr. Barry says—"Whenever I taste a Gansel's Bergamot, ripened to perfection, I always come to the conclusion it is the best Pear, as far as quality is concerned." Marshall P. Wilder remarks—"If pinned to one for quality, I must, considering all things, say Anjou, which I have on the table every morning for over four months in the year." Mr. George Ellwanger states that "for absolute perfection for table use, I name the Beurré Superfin." Mr. Charles Downing—"If I were limited to one Pear, it would be Beurré Bosc." Mr. J. J. Thomas—"For uniform excellence every year, without variation, the Seckel is undoubtedly the finest in quality. There are some others, as the Belle Lucrative, Grey Doyenné, &c., that are sometimes very fine and unexcelled." And finally, Mr. C. M. Hovey says—"If I were to name the very best Pear, without regard to season, I should name Dana's Hovey as the *ne plus ultra* of flavour and exquisiteness, and all other qualities except size."

When doctors disagree, who shall decide?—H. ELLWANGER, in *Country Gentleman*.

Strawberries for Light Soil.—At this season many plant their main crops of Strawberries in the open ground, and, owing to there being so many sorts from which to select, some may be glad to know which are the best to plant. Most people will agree with me in thinking that Strawberries, like other fruits, are affected by soil, locality, and situation. Some sorts, good in every way in one place, are worthless in another. I will name an instance in point: Some years ago, when in Dorset, Dr. Hogg proved itself to be a good Strawberry, but here in North Hants it does not succeed. James Veitch is much the same; some like this Strawberry, but I think we have many better. Here on light soil—by no means a good Strawberry soil—the following sorts do best, viz., Keen's Seedling, Sir C. Napier, President, and, last but not least, Oscar; I grow this as my main crop; it yields much more largely than any other, and the fruit is excellent. To those who, like me, have not a good soil for Strawberries, I would say give this sort a trial.—J. C. F.

As this subject has again cropped up, it may perhaps not be out of place to quote a few lines from "Forsyth's Treatise on the Culture and Management of Fruit Trees," published in 1803, Mr. Forsyth being then gardener to his Majesty George III. at Kensington and St. James's Palaces. At p. 195 he writes: "I have had very fine Grapes on east and west walls in good seasons, between Peaches, Plums, &c., particularly when the trees were young. I also train them over the tops of trees on each side, which never does any harm to the trees below provided you keep them nailed to the wall. I have also planted Vines between trees on north and east aspects, and trained them over the tops of the south and west walls to fill up the upper parts till the Peaches and Nectarines covered them. Two years ago I removed some old Apricots that covered a wall 165 ft. long, leaving five Vines that were planted against the piers. These five Vines have in the course of two years covered the above wall from top to bottom, and bear plenty of fine Grapes every year. I also moved an old Vine on a wall near to the above and cut it in pretty closely; it has in three years spread 26 yards, and bears very fine fruit. Against one of the piers had been planted a Black Hamburgh Grape, and the other side of the same pier was planted a Muscadine, at the distance of 2 ft. from each other. I pruned them according to my method, and the second year afterwards they produced 1100 bunches of fine Grapes."

In another chapter he describes his method of training Vines as follows. "When I took them in hand the fruit was so small and hard as to render it unfit to be sent to table. The Vines were trained upright, which caused them to grow so luxuriantly that the sap flowed into the branches instead of the fruit. In the year 1789 I let two strong branches grow to their full length without topping them during the summer. In 1790 I trained them in a serpentine form, leaving about thirty eyes on each shoot, which produced 125 bunches of Grapes, weighing from 1 lb. to 1½ lb. each. Every one who saw them said that they were as fine as forced Grapes. More fully to prove the success of this experiment, I next year trained five plants in the same way, and they were as productive as those in the former year. After a three years' trial I thought I was warranted to follow the same practice with the whole; and in the year 1793 I sent, for the use of his Majesty and the Royal Family, 378 baskets of Grapes each weighing about 3 lb."

From these extracts it seems pretty certain that good Grapes could be grown out-of-doors ninety years ago, and that being the case, I would ask, "Why cannot the same thing be done now?" We sometimes hear of the seasons being changed; but is that really so? A few remarks on the weather are quoted in the book just referred to, from which I cannot learn that it was any better then than that which we generally experience now, for he says that 1799 was a very wet and cold season, while 1800 was a very hot and dry one. In another place he mentions "cold blighting winds and frosty nights, such as we have had for several years past in June and July, cause young Pears to canker and fall off."

There can be no doubt that good Grapes might be cultivated in this country out-of-doors in favourable localities, especially on good south walls, which might also have the advantage of glass protectors, such as are used for Peaches and Nectarines. The chief points to be attended to would be a well-made and well-drained border to commence with; then a clean healthy growth, trained very thinly on the walls, so as to get it well ripened in the autumn; and the next season the usual routine of disbudding, stopping, thinning, &c., such as is generally practised in houses. With such attentions the result would be, I believe, very good Grapes, not, of course, to be compared with our finest hothouse produce, but such as would be highly appreciated by the million, who would gladly purchase them could they be offered to them at reasonable rates. H. HARRIS.

Deane Park.

ORDINARY FRUITS SENT OUT AS MARVELS.

EVERY year the public is disappointed in regard to some new fruit, of which we are led to expect wonderful things, from the unstinted praise and unlimited claims with which it is started off on its brief career. As a rule, we do not think that this fact results from any wish or effort to impose on the public poor or second-rate varieties, but rather from a defective acquaintance with the kinds already in cultivation. A person who cultivates but comparatively few varieties, may find a seedling, or possibly a good old variety, that he has never seen and perhaps never heard of, and he is greatly struck with its merits. He takes it up, puts it in a favourable place, and gives it extra care. The old varieties may even be neglected in the enthusiasm for the plausible stranger. Of course the highly-petted plants respond. I can take the Highland Hardy Raspberry, or Wilson Strawberry, and,

by a course of high culture, make them astonish the natives, and seem to the uninitiated like new varieties.

Neighbours and friends are called in to see the prodigy. They in most cases have had even less experience than the originator or discoverer, and they very honestly say that they have never seen anything so fine. Thus hopes and reputation grow apace. By and by the petted plant is sent, with a great flourish of trumpets, out into the rough and tumble of the world, and is compelled to endure any amount of what a friend of mine terms "wholesome neglect." It is also placed side by side with the great standard varieties that made their reputation years ago. After one year's fruiting the sanguine purchaser shrugs his shoulders over the new comer. After the second year he may wrathfully dig it out, saying that "the best kinds are good enough for him, and that he has no land or time for third-rate sorts." Or he may find that the new seedling, of which he expected so much, so closely resembles some variety that he already has, that he cannot tell them apart. As a case in point, I could never distinguish between the Romeyn Seedling Strawberry and the Triomphe de Gand. In Raspberries, I fear we are about to have a still more marked example. Good judges thought the Amazon identical with the Belle de Fontenay, and now truth compels me to say that on my place the Henrietta so nearly resembles the Belle de Fontenay, that I cannot tell them apart. I do not say that it is not a new seedling, but its parentage is very plain, and if grown side by side, I think it will be difficult to distinguish the two.

From the nature of things, we must always expect these disappointments. It may seem a harsh and ungracious task to blight with criticism the prospects of some new and greatly praised variety, and yet it is clearly one's duty to state plain unvarnished truth about these claimants to popular favour. A wide acquaintance with the fruits already in cultivation is perhaps the best preventive of the evil referred to. If a man knows well the characteristics of fruits already before the public, he will not send out varieties so inferior to, or so closely resembling them, that no advantage is gained. Last spring I started a specimen Strawberry bed. It contained fifty rows, and each row is a different variety, labelled in large letters. Anyone can walk down this bed and compare the foliage, fruit, and general merit of all these kinds at a glance. They are all grown under precisely the same conditions, no more favour being shown to one variety than to another. By another year I expect to have a hundred or more varieties growing side by side. It is my intention to start this autumn similar specimen beds of Raspberries, and all the other small fruits. Everything new that comes out will have to pass the ordeal of growing side by side with all the varieties that are not utterly obsolete. Then if it ranks with the best, or above them all, it is entitled to wear a crown.—*American Agriculturist*.

Heavy Crops of Peaches and Nectarines.—I send you an example of our Nectarines as seen growing. 23 dozen (see p. 136) is not a tithe of a crop on a large tree. I regret, however, to say that I made a mistake in my previous statement; the large Peach tree covers a space of 484 sq. ft., and at the average of ten fruit to a sq. ft. as given before, and which can be verified by others, the tree has this season carried over 400 dozen instead of 330 as stated (p. 105).—**T. COWBURN.** [The shoot sent showed five good-sized well-ripened Nectarines all growing within a space of 6 in.—three on one side of the shoot and two on the other. They were stated to be the remnant of a crop from which daily gatherings have been made for more than three weeks.]

—Allow me to inform "R. H." that Mr. Cowburn has underrated rather than overrated his Peach crop. It has been proved that one tree bore over 400 dozen fruit instead of 330 dozen, as stated (p. 105) by Mr. Cowburn.—**J. FANCOURT, The Nurseries, Fulham.**

—I was at Sunbury Park on the 1st inst., and saw Mr. Cowburn's Peaches and Nectarines, and can vouch for the correctness of his statement. I never before saw such a crop of fine Peaches on one tree. His Nectarines, too, were equally good.—**THOMAS LANCASTER.**

The Pacific Rural Hand-book, by Charles H. Shinn; published by Dewey & Co., San Francisco, California.—This contains a series of essays on tree culture, vegetable and flower gardening on the Pacific coast. The author is well known as a practical horticulturist, and a work especially adapted to their peculiar climate must be welcome to all cultivators upon the Pacific coast. Mr. Shinn, as our own columns indeed testify, writes well and gracefully on horticultural matters. He is the editor of the *California Horticulturist*, which has lately been a production of remarkable merit considering it is published in a country where a year or two before the first great London exhibition there were no gardens and very few houses.

NOTES OF THE WEEK.

New Hybrid Gladiolus (*G. hybridus Lemoineanus*).—This fine hybrid Gladiolus, raised by M. Lemoine, of Nancy, is the result of a cross between *G. purpureo-auratus*, a true species and a native of Natal, and *G. gandavensis*, which is itself a hybrid, and one of those from which the many varieties grown in gardens have emanated, having been raised some years ago between *G. psittacinus* and *G. cardinalis*. Lemoine's Gladiolus, which grows from 2 ft. to 3 ft. high, partakes in a striking degree of the characters of both parents, but it is said to have the more perennial character of *G. purpureo-auratus*. It is of robust growth, with plaited foliage of a rich green colour. Its flowers, which are about the size of those of ordinary garden Gladioli, are arranged closely on the spike, which is about 1 ft. long. The three upper segments, which are broad, are of a creamy white colour, and the lowermost one has a thick streak of rich deep purplish-crimson down the centre; the other two are wholly that colour except about $\frac{1}{2}$ in. at the tips, which is a bright yellow. It is now in flower in the open border in Messrs. Veitch & Son's Nursery at Chelsea, whence it was exhibited at South Kensington on Tuesday last, and was deservedly awarded a first-class certificate.

Mutisia decurrens.—A plant of this charming Chilian Composite is now in flower against a wall in the herbaceous ground at Kew, and is the admiration of every one who sees it, though the recent storm has considerably impaired its beauty. It is apparently in vigorous health, and the position seems to suit it admirably. The exposure is due south, and it is planted in a compost of good fibry loam and leaf-mould. The principal point, however, requiring attention is to keep the plant dry during the winter months.

Conandron ramondoides.—This interesting little plant was recently introduced from Japan by Messrs. Veitch & Sons. As its specific name implies, it is similar to a *Ramondia*, and, indeed, remarkably like *R. pyrenaica*. Its thick, fleshy, oblong, green leaves, from 4 in. to 5 in. long, form a tuft from which arise the flower-stems, about 6 in. high. These are erect and much branched, the upper half bearing several flowers, which measure nearly 1 in. across, and which have five points that slightly reflex. In colour they are a rich lilac-purple, the centre being chocolate and the stamens yellow.

Lilium testaceum.—By far the finest examples of this superb Lily which we have seen this season were growing in the herbaceous borders at Petworth Park. They were planted near a wall running east and west, so that they would be shaded during the hottest part of the day. The soil in which they were growing was rich and light, conditions which evidently suited them. Near these was a bed of *L. auratum*, consisting of well-grown plants finely in bloom. These were planted in similar soil in a corner sheltered from north and east winds.

Acacia Riceana.—This is one of the most desirable of all Acacias for greenhouse decoration, on account of the graceful pendulous habit of its slender branches, which are furnished with needle-like leaves and small balls of pale yellow, feathery blossoms. It is a plant that is easily cultivated, and one which will thrive admirably in any well-ventilated greenhouse. It is a native of Tasmania, where it grows abundantly on the banks of the river Derwent, and forms a beautiful feature during the flowering season. It is one of the most charming plants in the conservatory at Petworth.

Solanum crispum.—When seen in the form of large specimens, this, when in flower, is one of the most ornamental of shrubs. We lately saw in a garden in Sussex a specimen of it fully 15 ft. high, with a large round head of branches covered with clusters of rich purple Potato-like blossoms. As to its hardness there can be no doubt, as the specimen in question has been planted many years, and withstood even the past severe winter unscathed, though quite unprotected. It is a native of Chili, and one of the oldest introductions to our shrubberies.

Genista ætnensis.—Though by no means uncommon, this is a very desirable late-flowering shrub. At Kew, where it is now very conspicuous, plants of it may be seen varying from 3 ft. to 8 ft. high, and bearing abundance of small flowers, forming a mass of yellow, which stands out in bold relief from the deep green foliage of other occupants of the shrubberies.

Seedling Begonias.—We have received from Messrs. Sutton & Sons, of Reading, beautiful blooms of tuberous-rooted Begonias, both double and single, raised from seed obtained from a select strain. The flowers of most of them are large, well-formed, and brilliant in colour. *B. boliviensis*, Veitchi, Davisi, and the yellow-flowered *B. Piercei* are apparently the principal parents of these tuberous Begonias, and it is remarkable how in some forms the several characters of these sorts are combined; for instance the free-flowering tendency of *B. boliviensis* and the sturdy habit of *B. Veitchi* are seen in some, whilst in others the beautifully-mottled foliage of *B. Piercei*

is traceable even in the case of such as have scarlet blossoms. The rich deep crimson of *B. Davisii*, too, is apparent in several of the seedlings from it, but their flowers are scarcely so large as those of the others. The double flowers represent in some cases perfect cones of brilliant colour. These examples fully bear out the remark made some time ago in *THE GARDEN* that these popular flowers would eventually be obtained from seed from carefully-selected strains, as in the case of *Cinerarias*, *Calceolarias*, and other showy greenhouse plants.

Chirita sinensis.—The prettily variegated leaves of this plant, added to the delicate mauve-tinted and yellow-spotted blossoms which are produced abundantly, place it amongst the most desirable of plants for the decoration of a moderately warm greenhouse. It is easily cultivated, and continues in beauty for a considerable time. We saw it a few days ago in fine condition in one of the houses at the Pine-apple Nursery, growing in company with other Gesneraceous plants, a family to which it belongs.

Impatiens Jerdoniæ.—This is one of the brightest little plants at the present time in the Stoves of Messrs. Henderson's nursery, Maida Vale, where it is grown in considerable quantity. Unlike the majority of other Balsams it is of dwarf compact habit, growing not more than about 6 in. high. The leaves are tufted on the fleshy branches, and have a dark bronzy lustre on their surface which contrasts beautifully with the bright scarlet and yellow horn-like blossoms, that are borne in profusion for a succession of weeks during summer. Although it may be easily grown as an ordinary pot plant, it is admirably adapted for growing suspended in baskets, a mode of culture which shows its beauty off to advantage, but under either method of culture it is a very ornamental plant.

Galphimia glauca.—This Mexican shrub is seldom met with, but as shown at the last meeting at South Kensington it forms a handsome bush which would be well worth growing for general decorative purposes. The leaves are rather small and elliptic in shape, and covered with a glaucous hue, which gives the plant an unusual appearance. The flowers, which are yellow, are about the size of a sixpenny piece, and are borne in racemes springing from the axils of the leaves. It is a member of the Barbadoes Cherry family (*Malpighiaceæ*), and is doubtless as amenable to culture as its congener.

The Chinese Privet (*Ligustrum sinense*).—One of the most conspicuous shrubs now in flower at Kew is this excellent Privet. It varies in height from 3 ft. to 7 ft., and the slender branches furnished with wavy, yellowish-green leaves, curve gracefully outwards. The flowers, which are white, small, and starlike, are borne in dense panicles, and their fragrance is almost overpowering. These are succeeded by shot-like, purple berries, which, in autumn, are also very ornamental. It is one of Mr. Fortune's numerous introductions from China. Being perfectly hardy and nearly evergreen, it is an excellent shrub for any garden, whether large or small.

Evening Primroses Indoors.—These are somewhat unusual plants for conservatory decoration, but they answer admirably for that purpose, and have a pretty effect when, towards evening, they expand their bright yellow blossoms. Their sweet perfume, too, is another point in their favour. They are largely used to adorn the conservatory at Goodwood. The biennial kind (*Oenothera biennis*) is that principally used.

The Gentian-like Grammanthes (*G. gentianoides*).—This, one of the prettiest Alpines now in flower at Kew, is a capital plant for growing on dry parts of a rockery, or, indeed, in any other exposed situation. It grows about 2 in. high, and forms a dense, much branched tuft with fleshy leaves about $\frac{1}{2}$ in. long. It produces flowers in abundance; they have pointed petals, and measure about two thirds of an inch across. Their colour, when first expanded, is orange, with a distinct V-shaped mark at the base of each petal, but they finally assume a deep red hue. It belongs to the Stonecrop family; it is a native of the Cape of Good Hope, and was introduced into this country towards the end of the last century, but, nevertheless, it is even now far from being so widely known as it should be.

Royal Gift.—A park of 20 acres, the gift of the Queen, has just been opened at Heywood, near Manchester. In 1873, Mr. Charles Newhouse, a wealthy inhabitant of that town, was killed through a railway accident. He died intestate, and the Queen, as Duchess of Lancaster, accordingly came into possession of his estate. Her Majesty intimated her wish to present the estate to the town, and after some deliberation it was resolved that the gift should take the form of a public park. This has now been done, due provision being made for those who had claims upon the estate. The park has cost about £11,000.

Hampstead Heath.—Since this heath has been under the Metropolitan Board of Works it has been much improved. Planting has been successfully begun and the Ferns and other wild plants have

been protected; but much remains to be done before it can be considered at all creditable to the Board. The old roads are well kept, but new roads are wanted. These should be as well made as they are on Clapham Common or Blackheath, and should be planted as avenues; and much more might be done to make this beautiful and healthy spot more useful and more ornamental without at all interfering with its natural undulations or its almost wild characteristics.

MIDDLEHEATH COTTAGE GARDEN, CROYDON

THIS garden furnishes an admirable example as to how a comparatively small space of ground may be utilised economically and yet afford the luxuries derived from gardens of larger dimensions; the glass structures, indeed, are built upon a plan so simple and inexpensive that they are within the reach of all who own a garden and who would like a greenhouse too. They are arranged so as to form a continuous circuit round the garden, and thus, apart from their utility, they form a delightful promenade during winter without having to go into the open air. Attached to the dwelling-house is a conservatory, the roof of which is of wood and curvilinear, though glazed with flat glass. In a raised portion of the roof are placed Argand gas-burners surrounded by four-sided mirrors; these, owing to their height and other arrangements for carrying off heated air, are perfectly harmless to the plants beneath, and when lighted have a beautiful effect. The walls are rendered rustic in appearance by means of cork and other material; and the plants, too, are disposed naturally, without formal stages or exposing too much of the pots, which often mar the effect produced by beautiful plants in houses. Ferns of various kinds are used, as well as ornamental-leaved Begonias, Palms, Orchids, and Marantas, amongst which a fine example of *M. Veitchii* was noteworthy. A stream of water trickling from the crevices of a tastefully-constructed rockery, and falling into a pool below, in which are fishes and water-plants, adds considerable interest to the place. Climbing plants cover the roof, and from it are suspended baskets of Ferns, which have an elegant appearance; amongst these a handsome plant of the delicate *Adiantum gracillimum* shows how admirably adapted it is for such positions. Following a flight of rustic steps is a house 8 ft. wide and 250 ft. long devoted entirely to plants requiring similar treatment; trained to the back wall are Fuchsias and Camellias planted alternately, and they also flower alternately, for as soon as the flowering season of the Camellias is over the Fuchsias begin and continue until the Camellias flower again; both comprise the finest varieties and their full beauty is well shown, as they obtain an abundance of light and ventilation. Besides these there are hosts of climbing and other plants, such as Lapagerias, Clematises, Tea Roses, Heliotropes, &c., all hanging in graceful profusion from the roof and side walls. *Clerodendron Thomsonæ*, too, succeeds admirably along with these greenhouse subjects, and is now covered with blossom. Ferns, both hardy and greenhouse kinds, luxuriate along the sides of the path, and the whole is carpeted with *Selaginella Kraussiana*. A couple of 4-in. hot-water pipes are found sufficient to keep this house at an agreeable temperature in winter, and to effectually keep out frost. The next house, a wider one, which is kept at a higher temperature, is devoted to stove plants; in this house, too, was a thriving selection of Orchids, and growing on the same shelves some singular-looking *Stapelias* were producing their quaintly-spotted flowers, thus affording a striking instance of moisture-loving plants and those from arid regions accommodating themselves under the same conditions.

Some substantially built Vineries came next under notice, from one of which the crop had been cut. A succession Vinery, which contained several distinct varieties of Grapes, also contained a Peach tree growing against the back wall, and bearing a good crop of fruit; while on the ends of the house was a fine crop of Tomatoes, and the centre was filled with plants such as Coleuses, &c., thus affording an example of how much can be effected even with one house. Another house, over 100 ft. long, is devoted entirely to Peach and Nectarine trees, all of which are bearing heavy crops. This house is divided into two compartments, one for early forced fruit, the other for fruit to come on in succession. The mode of construction corresponds with that in the long house, except that in this there is no brick wall against which to build. Mr. Lascelles, however, has erected a substitute, which though not so substantial is quite as efficient, and far less costly. The house in question is about 8 ft. wide, and at intervals of about 7 ft. are built boxes of concrete, in which the trees are planted. These are 3 ft. long, 2 ft. wide, and 2 ft. deep, and before planting these require about 6 in. of rubble being put at the bottom for drainage, and a hole for the escape of water. On the edges of these boxes is placed the sill into which the uprights are fixed at intervals of about 1½ ft. The uprights consist of ordinary sash bars, which fit into a ridge plate at the top. Outside the sash-bars are ordinary roofing slates, fixed with putty and nails in the same way as glass would be

fixed in sashes, thus enclosing all woodwork which in the ordinary way would be exposed to the action of the weather, and thereby rendered more liable to decay. This completes the back wall, which is about 8 ft. high. The front of the house is constructed in a similar way, except that instead of slates there is glass fixed between the sash-bars, with a row of upright slates at the bottom fixed in the soil. The ventilation is effected by a simple contrivance, by means of which the roof and front lights are moved. The trees are not trained close to the back wall or the front lights, but are brought forward and tied to a galvanised wire trellis, at about 1 ft. from the back and front. As the trees are grown somewhat according to the system of pot culture, their growth is considerably restricted, and they make short well-ripened spurs which are very productive, and though the back wall has a northern aspect, the heat which passes through the thin slates on the southern side is sufficient to mature the fruit both in colour and flavour equal to that produced on the opposite side. In the intervening partition boxes in which the Peach and Nectarine trees are planted inside are grown Cherries and Plums, which are trained to the outside wall, which, having a southerly aspect, produces an early crop of these fruits.

These houses have been erected for over six years, and still they look none the worse, on account of the small amount of woodwork exposed. Another desirable point obtainable by this system is that no matter what the nature of the surrounding soil may be it does not affect the fruit trees, as the roots are quite enclosed, and the comparatively small amount of soil required to fill the boxes can be made to consist of the best and most suitable material, and an occasional top-dressing of some concentrated manure is all that is afterwards required. It should have been previously mentioned that the wall-sill at the bottom is placed on the centre of the concrete boxes, so that half the boxes are inside the house, and half outside, an arrangement by which the soil in the boxes is kept sufficiently moist during the greater part of the year by the rain that drains from the roof. Another feature in this garden is the rocky banks made of concrete, which are planted with Strawberry and other hardy plants, and which have a pretty effect, as they grow rapidly and hang over the ledges.

W. G.

THE GOLD DIGGER'S BUTTON-HOLE.

THE mining camp of Mabie was shut in by forest-covered heights, and shadowy mountains, and royal, shining peaks of snow; translucent, ethereal, tremulous with the awakening rose of morning and the fading hues of sunset. From under those far peaks an icy river crept, and wandering south for many miles met another similar stream flowing northward, and they flowed on together to the ocean. The busy little town was clustered about the point where these rivers united; and a dusty road, winding down the hillside, crossed the black rough-hewn bridge, and slowly passed out of sight. This road was the only connection with the outer world; the great hulks of the freight-waggons rose and fell over hummock and rut; the light mail-wagon passed; the mule-mounted prospector trotted by; and, at some rare intervals, a footsore, impecunious wayfarer rested his weary limbs in the pleasant little town.

There was a white cottage by the roadside just at the entrance to Mabie. Garden there was none, for the soil had been sluiced off down to bed-rock, but an Oleander bush grew and flourished in a large box by the door. A little girl stood by it tiptoeing up to smell the gorgeous masses of bloom. Just then a footsore miner, evidently tired, hungry, and discouraged, came slowly along the road, weighted by a roll of blankets. He was, in simple truth, an unkempt, ragged, rather truculent looking miner, and seeing the little girl and the blooming Oleander, he stopped by the gate and looked in.

"Little girl," he said in a low tone, "them's purty flowers; could ye give me one?"

The child looked at him half afraid, but she summoned up courage at last, and breaking off a cluster which drooped temptingly near, held it half doubtfully a moment, and then tripping shyly down the broken steps placed it in his hands. She hardly waited to be sure he held it before she fled back to her vantage ground, and sitting on the step of the porch, poised her chin on her hand, looking coquettishly up at the brown, bearded miner. There was a long pause, and silence. The miner laid his cluster of flowers on the fence rail, and fumbled uneasily with the buckle of his heavy pack, from which the flat handle of a frying-pan protruded. The little girl watched him curiously. He unstrapped his bundle, gave it a kick, and tore it apart. From the very middle he took a yeast powder can, wrapped about with cloth and tied up with a buckskin thong. A smile spread slowly, and with considerable difficulty, over his face as he shook it and heard a faint rattle.

"Come, little girl," he said, looking up toward where she sat, "come down an' see me a minnit."

She looked shyly down, in a wavering attitude, hardly knowing

whether to cry or smile, but curiosity won, and the chubby child began to climb down the rickety steps, until she stood by the fence, and peeped through between the boards. By this time the miner had opened the yeast powder can, which contained a handful of gold dust and a few nuggets. He chose the largest, an irregular bit, worth perhaps twelve or fifteen dollars, and gave it to the blue-eyed child.

"It's my turn now," he said, "that's for your weddin' day, little girl. Jes' ye tell the folks as how an old prospector came along an' wanted a flower to put in his button-hole."—*California Horticulturist*.

PLATE CXCIII.

MACKAYA BELLA.

Drawn by CONSTANCE PIERREPONT.

THIS beautiful shrub is a native of Natal, and was discovered by Mr. J. Sanderson in 1859 growing in the bed of a stream at Kruis Fontein, Tongat. Subsequently both he and Mr. McKen sent living plants of it to Kew, where it first produced blossoms in 1869. From Mr. Sanderson's original notes accompanying his dried specimens in the Kew Herbarium, and the different plates of *Mackaya bella* that have been published, there appears to be considerable variation in the coloration of the flowers. Probably the greater or lesser intensity of the colour is due to the degree of light to which the plant is exposed. Mr. Sanderson describes the flowers as of a delicate lilac blue in his note in the Kew Herbarium, and in a letter to the late Dr. Harvey, of Dublin, he speaks of it as "a beautiful shrub, one mass of most delicate, pendent, pale lilac, campanulate flowers." The plant that first flowered at Kew (in the Palm house) produced ivory white flowers streaked with red; at least so they are depicted in the "Botanical Magazine," pl. 5797. A plate subsequently published in the "Illustration Horticole," represents the flowers of much the same colour, whilst in the accompanying figure they are of a decidedly lilac-purple, more nearly agreeing with Sanderson's first description. The genus *Mackaya*, of Harvey, was dedicated to James Townsend Mackay, LL.D., author of the "Flora Hibernica," and for many years the able superintendent of the Dublin University Botanic Gardens; but in Bentham & Hooker's "Genera Plantarum" it has been reduced to *Asystasia*, thus sharing a similar fate to the *Mackaya* of Arnott, a Cucurbitaceous plant, to which Blume had previously given the name of *Erythrophalum*; but the glory of a plant is not in its name. W. B. HEMSLEY.

Forced Flowers.—The following note in reference to the long period over which the different classes of forced plants have been in bloom with us may perhaps be interesting. We have had Lilies of the Valley in flower from Christmas until the first week in July; these had been plunged in Cocoa fibre outdoors, and brought into the forcing house as wanted, a good freezing being I consider necessary to ensure quick forcing. Roman Hyacinths came in in the first week in October, large-flowering kinds at Christmas, and they lasted until the middle of June, the earliest being Grand Lilas, Grand Vainqueur, La Précieuse, Charles Dickens, Amy, Waterloo, La Tour d'Auvergne, Robert Steiger, and Norma. A quantity at a time was potted up and plunged out-of-doors, keeping some of them out of pots as long as possible, this being the only way to ensure very late flowering. Spiræas lasted from the end of January to the first week in July. Carnations were good all winter; we grow about 6000, and we are never without flowers all the year round; even now there are many perpetual bloomers in the conservatory, and they attract more attention than any other flowers, almost every one stopping to smell them. The best two whites are Princess of Wales and Marguerite Bonnett; the best two scarlets Daybreak and Florentine; and the best red, Vulcan; other fine kinds are Miss Jolliffe (blush); Lillie (bluish-purple, edged with white); Alice (fine yellow, edged with rose); Iorna (rose); and Conqueror (crimson). Bouvardias last well with us; those grown out-of-doors last summer, and lifted in the second week in September, commenced blooming in November and kept in flower all the winter; others which came in when these were over are still in bloom. Thus it will be seen that by judicious management the season of blooming of almost any plant, when grown in quantity, can be considerably extended, and that with but little trouble.—JAMES O'BRIEN, *Pine-apple Nursery, Maida Vale*.

Clematis lanuginosa.—Amongst wall climbers this *Clematis* stands in the first rank, as, in addition to its very large blossoms, it comes into flower after many of the other plants are over. We have it mingling with Wistarias, Banksian Roses, &c., and thus associated the large flowers are seen to advantage; in fact, a very important matter in the case of wall climbers is to select such a variety as will keep up a continuous display during the greatest possible length of time.—J. GROOM, *Linton Park*.



GARDENING FOR THE WEEK.

Flower Garden.

Every kind of hardy tree and shrub in this part of the country (and doubtless it is the same everywhere) has apparently enjoyed to the fullest extent the wet season, for without exception they are all making magnificent growth, and present a condition so vigorous both as regards colour and foliage as is rarely seen. But the picture has unfortunately another side, which is, that such growth means increased labour—at least, as far as ornamental grounds are concerned—in order to keep it from encroaching on walks, paths, vistas, and from injuring by overcrowding. It will therefore be necessary to give attention to these matters at once. Guard against pruning, however, in too formal a manner, and such work should be done with a knife; clipping with shears should only be had recourse to in the case of formal belts, screens, or hedges. Climbing plants, particularly Roses and Clematis, have also made extra vigorous growth and now require tying in, and picking off decayed flowers and seed vessels in order that they may continue long in a flowering state. Roses, indeed, of every description are all the better for having all bad flowers regularly removed, not more for the sake of neatness than for the encouragement of successional blooms. Excessive growth is also exhibited by many plants on rockworks, and here also there is danger of the stronger overpowering the weaker unless early attention be paid to them. The present is a very good time to propagate many of this class of plants by division. The propagating of bedding plants in ordinary seasons would be at this date in full operation, but the beds are not yet filled out, or in full beauty; therefore cutting them about ought not to be thought of; we must therefore be content to preserve the old plants and propagate during the winter and spring. A fortnight hence will be ample time to put in a few store pots of cuttings of such plants as do not lift well; amongst these are Petunias, Verbenas, Heliotropes, Lobelias, Coleus, Alternantheras, and Iresines. The tempest of Saturday night, the 2nd inst., destroyed what little hope we had left that bedding plants would this season attain to anything like perfection. Still, no pains ought to be spared to render them as attractive as circumstances will permit by the preservation to the fullest extent of neatness, both as regards the beds, turf, and walks.

W. W.

Carnations and Picotees.—Those plants that have been grown in pots for exhibition, and that have been carefully nurtured, will have ere now repaid the cultivator for all the care that has been bestowed upon them; and this season they really did require considerable attention early in the year. Ours were kept very late in frames, or were otherwise sheltered from cold winds and continuous rains until they were well established in their blooming pots. They were out-of-doors from about the last week in April until the middle of July, and by that time only about a score or two of blooms were showing colour. The pots were then carried into a house where they could be well exposed to light, but any flowers half expanded were shaded when the sun shone out rather brightly. If Carnations and Picotees are shaded too closely the colours are not nearly so bright as they otherwise would be, and some sorts, such as Mrs. Fred Burnaby (Turner), and Samuel Newman (Hooper), pale rose flakes, are quite spoiled by close shading. Plants out-of-doors are now coming into bloom, just four weeks later than usual. It is generally safe to fix Carnation and Picotee shows in London on or about the 20th of July. This year such displays should have been fixed for the 20th of August.

Dahlias.—These are now opening and very good the first blooms are. We have had a few fine days which have brought the colours out well; the whites and yellows are clear, and the darker tints very satisfactory. During the last few days Dahlias have made very rapid growth, which has necessitated stopping and also tying the leading stems carefully to the stakes. Select suitable side growths and use them for cuttings; they strike freely in an ordinary frame even if there is little or no bottom heat. If it is intended to exhibit, small bloomed kinds must be judiciously thinned out, but those that have large flowers inclining to coarseness should not be much thinned. It is also necessary to rather closely shade some of the blooms in order to bring out the delicate tints of the lighter sorts; for this purpose nothing answers better than a stout stake driven into the ground near the flower to be shaded; on the top of this nail a board about 9 in. square, in which a slit is cut to its centre wide enough to admit the flower stem. Let the latter be drawn into this slit until the back of the flower just rests upon the board. A clean 6-in. or 7-in. flower pot answers as well as anything for shading the flower. In most cases the hole in the bottom of the pot has to be stopped, in others it should be left open. It is well to stop the slit with Moss or something to keep out earwigs, which shelter themselves in any cool dark retreat, and make sad havoc of the Dahlia petals.

Gladioli.—The bulk of our collection has in ordinary seasons

been in flower by the third week in August. This year not a single plant is showing bloom; this seems likely to be a disastrous season for this flower. I have usually recommended seeds of Gladioli to be sown in pots in April, and a season like the present shows the wisdom of some arrangement whereby the pots can be removed to a warm corner of the garden or even kept under glass until the small corns have ripened. This season also proves that it is desirable to inoculate some of the later flowering sorts with those that flower some six weeks earlier.

Phloxes in Pots.—These are now beginning to prove useful for conservatory and greenhouse decoration; the delicate tints and sweet perfume of the flowers of such plants are more pleasing to most people than the glowing colours of zonal Pelargoniums, and those fond of zonals will find their beauty enhanced by mixing amongst them some plants of Phloxes. The pots in which they are growing require abundant supplies of water, and it ought to be mixed with manure water occasionally.

Delphiniums, Pentstemons, Antirrhinums, &c., make a fine display mixed with other plants in shrubbery borders, and they are more effective in the shapely long borders than in others where the space is limited. See that the stems are not allowed to hang loose; on the contrary let them be fastened to sticks as they increase in growth, but not too stiffly. Remove all seed pods and decaying leaves, and keep the ground if possible well stirred and free from weeds.

J. DOUGLAS.

Conservatory.

Flowers under glass are this year more acceptable than usual, as the summer bloom out-of-doors has been more meagre than ordinary, therefore every effort should be used to maintain in conservatories as good a display as possible. Where there is a good supply of Lilies, especially of *L. auratum* and the early and later-flowering varieties of *L. speciosum*, together with *Valottas*, *Tritonias*, hard-wooded greenhouse plants, *Fuchsias*, *Zonal Pelargoniums*, and the like, mixed with fine-leaved subjects, there will be no difficulty in keeping this structure sufficiently bright.

Pillar Plants.—Many of the plants classed as greenhouse climbers, and employed for covering the usual roof supports, are far from being fit for the purpose. They are often such strong growers that they quickly run up to the top, leaving the lower portion of the pillars, where their presence is much wanted, devoid of leaves. Where plants for use in this way are required they are usually wanted to give immediate effect, and for that purpose it is well to prepare them beforehand by growing them on in pots until they are large enough to produce some effect at once; if healthy young plants are got now and an extra shift given them, time will be gained. It is scarcely necessary to say that instead of having the shoots pinched so as to form bushy specimens, they should be trained erect, only stopping a few of the strongest growths at different heights to cause these to break out. Subjoined are a few of the best plants that I have found for the purpose: *Cantua dependens* bears deep pink flowers, produced like those of *Fuchsia corymbiflora*; this is only fit for a pillar, as its determinately erect habit makes it unsuitable for growing in the ordinary way. *Hovea Celsi*, the lovely blue flowers of which are unsurpassed by those of any Pea-blossomed plant, has a habit which just fits it for growing on pillars. *Habrothamnus elegans*, which is stronger in growth than the two preceding, can also be easily kept within bounds, and is likewise an excellent subject for the purpose indicated. *Mitraria coccinea* (the Scarlet Mitre-flower) is another effective plant in a position of this kind, as by annual judicious cutting-back it can be had in flower from the bottom up to any reasonable height. The old *Hoya carnosa*, which will succeed for many years in a very small pot, is nowhere seen to greater advantage than when trained to a pillar. The blue *Plumbago capensis*, too, needs comparatively little root-space, and grows up quickly; its foliage is always neat, and it will keep on for many weeks producing its handsome pale blue flowers. *Clianthus magnificus* and *C. puniceus* are both good pillar plants, which are not disposed to get too large. *Fuchsia corymbiflora* is never seen in better condition than when grown in this way. The red and white *Lapagerias* are also amongst the best plants that can be employed for the purpose; the only objection to their use being that as they get old they require considerably more root room than is afforded by the usually small space that is available at the foot of a greenhouse or conservatory pillar wherein to turn a plant out, and if kept in pots or boxes the arrangement of the house is generally such as to produce an unsightly appearance. Plants of any or all of these, well prepared beforehand, will, when transferred to the positions they are to occupy, soon obviate the disagreeable effects of bare pillars.

Greenhouse.

Large-flowering Cacti.—These undoubtedly rank amongst the showiest of greenhouse decorative plants. They are also easily

grown; indeed, they will exist under conditions such as few other plants could endure. By keeping them tied in an erect position the space which they occupy is very trifling, and thus managed they will stand up high in relief above the surface of lower-growing plants. A few good specimens interspersed when in flower amongst the more-usually-met-with greenhouse and conservatory subjects, give a character and variety to the whole. To train them in the way alluded to, it is only necessary to get some pieces of stout iron wire, about the thickness of an ordinary cedar pencil, and double the length to which the plants are intended to be grown; bend these in the middle, so as to bring the ends together in a way that they can be inserted deep down in the soil just within the rim of the pot; paint them green, and they will answer the required purpose for many years, whereas if wooden stakes are used, the plants, from their weight, necessitate these being so strong that they have a clumsy appearance, and, in addition, they soon rot off near the bottom. The flowers of *Epiphyllums* do not individually last long, but when the plants get strong they continue to yield a succession for four or five weeks, and well repay the little attention which they require. The main point in their cultivation is to pot them in material that cannot possibly get sour, as their roots will not live in soil when reduced to that state. Good loam, to which is added a liberal sprinkling of small potsherds, enough sand to keep it porous, and a little well-decomposed cow-manure, if such be at hand, will grow them well. Pot firmly, and when the plants get sufficiently large they will do for several years without any increase of root-room or the soil being disturbed in any way; but they should be given a little manure-water during the growing season. In order to ensure their flowering each year, the growth should be thoroughly matured, and to effect this I have found nothing so good as placing them for the next five or six weeks against a south wall, where the heads of the plants can be firmly secured against the brickwork. This not only keeps them safe as regards wind, but the roasting which they thus get has an effect something similar to the hot drying influences to which they are subjected in their native country. Whilst in a position of this sort until the end of September they will require very little water, and care must be taken that soil in which they are growing does not get over wet through rain or drip from the coping.

Imantophyllums.—These are alike useful for general decoration and for cutting, but to grow them satisfactorily and in a way that will admit of the plants increasing in size, they must have sufficient root-room. They bloom at different times of the year, according to the treatment which they receive, but mostly through the latter part of winter and spring. Immediately after flowering repot such as require more room, or break up large specimens where a number of smaller plants, as is ordinarily the case, are found more serviceable. They may be divided now, but I should not recommend their being parted into single crowns in the manner that they would bear before the growth was made, for although they usually keep making roots freely when there is no top growth going on, yet dividing them into too small pieces would most likely interfere with their blooming. In the case of plants which it is desirable to grow larger and that require more root-room, even if the growth is completed, it will be better to move them at once than wait until spring, as the next growth they make will be much benefited by it.

Hard-wooded Plants.—It is now time to place out-of-doors the greater portion of what are termed hard-wooded greenhouse plants grown in pots. There are two reasons why they should be subjected to open-air treatment for some weeks; one is that if kept wholly under glass many continue growing in a way that interferes with their setting bloom, and on that account they flower sparingly; the next is that with all plants at all apt to suffer from mildew the leaves by exposure become much harder, more solidified, and very much less liable to its attacks than they otherwise would be—in fact, there are many plants, such as *Boronia pinnata* and *Hedera tulpifera*, on which it is next to impossible to keep the foliage in a healthy condition through the winter except they are put out-of-doors. It was at one time usual to turn out almost indiscriminately all plants of this description considerably earlier in the summer than this, but I have found such a course to be a mistake; it curtailed the growth that many continue to make whilst they remain under glass, and early turning out has also the effect of producing a determination in the plants to bloom correspondingly earlier the following spring, which even for general decorative purposes is a loss, on account of their thus coming into flower all together instead of affording a succession, which, when they are inclined to bloom later, can be easily managed by keeping a portion a little closer than the others through the spring, so as to bring them on sooner. Again, if the plants are exposed for a long period through the hottest part of the summer, the smaller ones are liable to get into a stunted state, and the four or five weeks that now intervene between this and the latter end of September are

quite sufficient to effect the purpose required. Should the weather become very hot and dry, it would be well not to put them where the sun at mid-day would be full upon them for the first week, as the sudden exposure under such conditions sometimes injures the leaves; but after a few days they may be brought into its full influence, except such plants as *Hedaromas* and *Boronias*, which are better where the sun will not shine straight upon them during the hottest part of the day. They should stand on a bed of coal ashes sufficiently thick to keep out worms, and in the case of anything but small specimens the sides of the pots next the sun ought to be shielded with pieces of mat or old canvas; small plants may be set near enough together for the heads of one row to shelter the pots of those behind them. Previous to turning out see that all are free from red spider and green fly. Everything of the character of *Pimeleas* that are subject to red spider should be freely syringed every afternoon when the weather is bright.

Pelargoniums.—The earliest headed-down large-flowered varieties of these will be now ready for potting; they should at once be shaken out and have their roots reduced proportionately with their size. Specimens that have got as large as may be required will need more of the small roots now in a matted condition removed than younger stock. All the larger plants will be better for being placed for a time in pots a size smaller than those in which they have flowered. Use the soil in a sufficiently moist condition, but not too wet; good turfy loam, with about a fifth of well-rotted manure, and sand proportionate to the nature of the loam, will suit them best, ramming the soil into the pots to make it quite close and firm. Put them in pits or frames with the lights on, but tilted so as to give some air in the day time, closing them down in the afternoons to assist the formation of fresh roots. Give no water to the soil for a fortnight or three weeks except such as reaches it from the syringing which the plants should receive every afternoon when closing up. In the case of fancy varieties it is not advisable to carry the disrooting process so far as in that of the larger kinds; in other respects similar treatment will suffice.

Large-flowered Pelargoniums and such of the now numerous decorative kinds—the latter so useful for general purposes—that have been kept in greenhouses or conservatories on account of their flowering continuously, should at once be turned out-of-doors to get their wood ripened previous to their being cut in; three or four weeks will effect much in this direction, and the plants will break much better when headed back than if kept wholly under glass.—T. BAINES.

Hardy Fruit.

The weather, aphides, birds, and—the last arrivals—wasps seem this season determined to render our hopes of anything like a fruit crop futile. Of course, the weather we cannot alter, but with the others a resolute will and hard work may successfully grapple. For aphides, syringe with soap-suds or Tobacco-liquor; against the depredations of birds, net up the fruit and use the gun freely; and for wasps search out their nests and destroy them. Apricots are now ripening, and blackbirds, thrushes, and even squirrels are partial to them the moment they are eatable. It is therefore wise to look over them every morning for the purpose of safely storing all that would be likely to tempt the almost insatiable appetite of these pests. Morello Cherries and Currants that are required to be kept must be at once thickly netted up. I find that even wasps do not face the finer make of hexagon netting, and this is infinitely preferable to mats, which do not admit sufficient air and light, and consequently the fruit becomes mildewed, and the trees get permanently injured. Trees and bushes from which the fruit has been gathered should have all surplus wood cut out. I refer more particularly to Currants and Gooseberries, which in this respect do not, as a rule, receive the attention which they merit, and which an improved and greater amount of produce well repays, not to mention the pleasure which the sight of well-cared-for fruit bushes always produces. Early kinds of Pears, such as *Citron des Carmes* and *Jargonelle*, ought to be gathered as soon as the faintest signs of maturity present themselves, for, if allowed to fully ripen on the trees, they get mealy, and do not keep so well; neither kind will, however, keep in good condition many days, and therefore it is not worth while to have more than one or, at most, a couple of trees of these sorts in any collection. Williams' Bon Chrétien is also approaching maturity, and in some measure the above remarks also apply to this kind, but its season may be prolonged by gathering the fruit at various times, say a part now, and the remainder on two other occasions at intervals of a few days. Any trees that are bearing a full crop of fruit may be assisted to perfect it by sprinkling guano about them, to be washed down by the rains. Peaches, Nectarines, late Pears, and Apples will all be much benefited by such a dressing. Over-luxuriant trees should be noted for the purpose of root-pruning when the proper time arrives for the performance of that operation; meanwhile, cut off all the

strong watery shoots, and thin out others to a moderate extent in order to ensure consolidation and ripeness of the remainder. All kinds of fruit trees may now have their new growths finally fastened to the walls or trellis. Avoid overcrowding when doing this, as it is necessary, considering the present immature state of the wood and the problematical character of the weather, that every leaf should have breathing space and the fullest exposure. Preparatory to fruit harvesting, fruit rooms should now be well cleared out, the walls lime-washed, shelves and tables repaired, and defective ventilation and drainage made good; unless these two latter are effective it is impossible for fruit to keep well.—W. W.

Extracts from my Diary—August 18 to 23.

FLOWERS.—Potting seedling Primulas, the result of crossing double and single kinds. Cutting seed-bearing stems off Mignonette and laying them on paper to ripen. Breaking up clumps of *Dactylis elegantissima* for use in spring bedding and planting them. Shifting double Primulas from 3-in. pots to those in which they are to flower. Potting a few Souvenir de la Malmaison Carnations for specimens. Chopping up soil and mixing with it leaf-mould and rotten manure for Cinerarias. Re-arranging plant houses. Propagating bedding plants. Sowing beds of East Lothian Stocks; also Golden Pyrethrum. Taking up Chrysanthemums grown in borders and re-planting them in herbaceous borders. Making a trellis in Fig house and training Maréchal Niel Rose on it. Shifting Poinsettias from cutting pots into those in which they are to flower. Putting in cuttings of Pelargonium Vesta, Happy Thought, and Robert Burns.

FRUIT.—Tying-in leading shoots of young Melons just planted. Cutting shanked berries out of Trebbiano Grapes. Gathering all ripe Plums. Thinning Grapes in late Vineries where too thick. Pruning in Pear shoots. Planting Strawberries. Gathering all ripe Morello Cherries for bottling. Top-dressing Melons and fertilising their flowers. Taking nets off Morello Cherries and putting them on Peach wall to keep off wasps.

VEGETABLES.—Planting Moss Curled French, and Batavian Endive. Sowing last crop of summer Spinach. Digging Scotch Blue Potatoes (the last in garden), and raking ground over for next crop. Sowing Mustard and Cress. Staking and moulding up last crop of Peas—William I. and Challenger. Watering Celery, Lettuces, and last-planted Greens for winter use. Preparing for digging main crop of late varieties of Potatoes. Gathering all Scarlet Runners and Capsicums. Cutting all ridge Cucumbers that are ready for use.—R. GILBERT, *Burghley*.

THE CULTIVATION OF BOG PLANTS.

A DISTINCTION should, I think, for practical purposes be drawn between bog plants and water plants, on the one hand, and marsh plants on the other. There are many plants, such as *Ranunculus Lingua*, *Lythrum Salicaria*, *Menyanthes*, and *Butomus*, which are so distinctly water plants as only to require their roots to be in the mud below constantly present water in a less degree than the Water Lilies, Frog-bit, *Stratiotes*, and other submerged and floating plants which cannot live in any other condition. Then there is another group of plants, which, though often found growing in water, and even more flourishing there than elsewhere, yet do very well in moist earth, such as the *Caltha*, *Spiræa Ulmaria*, *Geum rivale*, *Chrysosplenium*, *Eupatorium*, *Bidens*, *Symphytum*, *Lycopus*, *Lysimachia vulgaris*, and *Leucocjum*. The majority of these seem to be but slightly, if at all affected by the stagnation of the water, in the soil. *Geranum pratense*, *Vicia cracca*, *Epilobium hirsutum*, *Circea Pulemonioides*, and *Solanum Dulcamara*, can hardly be classed with these marsh plants, since they are so at home in very unmarsh-like situations. Then there is another distinct group of plants, the essential pre-requisites for successful cultivation of which are, I believe, a soil constantly saturated, but preferably never stagnant, and, as far as possible, a moist and, I think, a cold atmosphere. These are what should be distinctly termed bog plants. Such are *Viola palustris*, *Parnassia*, the *Droseras*, *Pinguiculas*, *Anagallis tenella*, and *Narthecium*. These I have observed to flourish most in exposed upland bogs supplied by springs, where the sun renders the air moist without drying up the water, but where they are also exposed to the fresh, cold air. In these groupings I have kept purposely to British plants, as those with whose habits I am most familiar, and have hardly mentioned any which are not worthy of cultivation.

144, Kensington Park Road.

G. S. BOULGER.

leaves of this Pæony will be found very useful for finishing them off. I do not know of any other hardy plant so suitable for this purpose, the leaves being of just the right size, very firm, and forming, when in position, a neat fringe of glossy, finely divided foliage, much resembling in form, and really rivalling, that of many of the Fern tribe in beauty. A few vigorous specimens planted in good soil will furnish an abundance of leaves throughout the summer.—JOHN CORNHILL.

Winter Cucumbers.—Where Cucumbers are in demand during the winter months seed should be sown without delay. I find that the best plan is to sow single seeds in small pots; they vegetate quickly at this season, and the young plants should be shifted into larger pots as soon as may be necessary, keeping them near the glass, and well exposed to the air, in order to induce a sturdy growth. Large pots or boxes answer well for winter work, as the Cucumbers may be grown on back shelves of Pine pits or in similar structures where sufficient heat is maintained to keep them growing freely, but they will not be satisfactory unless a minimum temperature of 65° be maintained in the severest weather. If planted out in beds where hot water pipes supply the bottom heat, I find it a good practice to put a good thickness of bundles of heather under them. These allow the heat to rise regularly and gently, and also provide ample drainage. As regards soil, we rely principally on turfy loam, making it rather lighter for winter than for summer crops, by adding peat or thoroughly rotted leaf soil or hotbed manure. We plant on mounds or ridges, and keep adding a little fresh soil as the roots show themselves on the surface. Abundance of tepid rain water and weak liquid manure, keeping the foliage clean by timely fumigation, and attention to thinning both fruit and foliage, cannot fail to produce good results, as no plant cultivated can vie with the Cucumber as regards weight of produce. As to kinds we rely principally on Rollisson's Telegraph, a variety which usually shows five or six fruits at a joint, and which requires severe thinning. The number of fruits that some of our plants have perfected is almost incredible.—J. GROOM, *Linton, near Maidstone*.

Cross-bred Potatoes.—It would seem as if the Potatoes of the future would be the produce of American kinds fertilised with some of the best English sorts. An Anglo-American race, combining the size and heavy cropping qualities of the one with the form and fine table qualities of the other, securing from this cross harder constitutions, will probably prove eventually to be the best cure for the disease. Already as mere chance seedlings from the Early Rose, but evidently fertilised in some way by other pollen, we have *Magnum Bonum* and *Schoolmaster*, both fine cropping kinds withstanding the attacks of the disease better than most others, and offering some promise that may ultimately lead us to the desired end. Mr. Robert Fenn, the well-known Potato raiser, has in hand for the fourth year of trial a number of seedlings raised from American kinds fertilised with English pollen, some having handsome-coloured tubers and others as white as snow, but all presenting a fine productive break. I have just lifted a number of seedlings, the produce of two Anglo-American crosses, the one Extra Early Vermont, crossed with Early Market and Success, a large Snowflake variety, crossed with the new Woodstock Kidney. Of the first cross two only have been selected, as these present what has been so long desired, pure white skin, duplicates of Early Rose, with all the best qualities of good English kinds. The other cross gives about a dozen selections, several dwarf and early, others later and robust, and all heavy croppers. I hope to find amongst these, sorts that will excel both International and *Magnum Bonum*, and that will produce crops quite a month earlier than the latter.—A. D.

Potato Crops in Meath.—The very wet and cold season which we have had has caused the Potato crops to be fully a month later than usual. Early Potatoes are good, especially those that were planted on freshly-trenched ground; those planted in the fields, such as Early Rose, Climax, Snowflake, are very poor, being soft, and very few to the root. Late ones, such as Champion, Flukes, and Scotch Donns, are worse still. Plenty of top has been made, but few tubers; disease has also appeared in not a very mild form, and it is spreading rapidly.—JOHN CLEWS, *Headfort, Kells*.

Potatoes in Worcestershire are unusually late, but they were strong and healthy up to the last ten days, when the disease has manifested itself generally, and is now making rapid progress. The season being so late, too, the tubers are not yet in a sound state for lifting; even the early sorts are still tender. The crop is fine, and the quality good, and with favourable weather even the large kinds would soon be fit for harvesting. Should wet weather continue for any length of time, the late sorts must certainly suffer severely.—GEORGE WESTLAND, *Witley Court*.

Fennel-leaved Pæony.—Where it is the custom to make bouquets of ordinary summer flowers in an informal natural style, the

Little Wonder Pea.—This is a first class dwarf Pea and one well suited for small gardens, for while it requires very few sticks and grows only 2 ft. high it is covered with a load of fine pods equal in quantity to many of the tall sorts.—G.

THE KITCHEN GARDEN.

TRIAL OF CABBAGES AT CHISWICK.

By A. F. BARRON.

THE number of truly distinct or typical varieties of Cabbages is not very extended, but their variability of character and appearance has led at all times to an almost endless multiplication of names, which are most confusing and misleading. The necessity for arrangement and classification of the numerous names of Cabbages found in trade catalogues which has long been apparent, induced the Fruit Committee to institute a most comprehensive trial under the same conditions of all the varieties and supposed varieties that could be procured. Two trials or examinations were made. Firstly, from seed sown early in March, the Cabbages coming in for use in autumn. This formed the most comprehensive trial, the most of the varieties showing their peculiar characteristics to great advantage at this season, the cool, moist autumn weather being extremely favourable to their proper development. At this trial the greater part of the synonyms, &c., were determined, and their adaptability or otherwise for autumn use noted. Secondly, from seed sown in July, the Cabbages coming in for use the early part of the following summer. In this trial the synonyms previously determined were not included, the typical or distinct sorts chiefly being tested, including all those of doubtful character which were not satisfactorily arranged at the autumn examination. In this way the whole of the typical varieties were tested twice, both as summer and autumn Cabbages, and their proper seasons noted.

For convenience and simplification, the whole of the Cabbages have been arranged in three general classes, as follows, which are fairly well defined:—

1. Garden Cabbages, or Varieties Suitable for Garden Culture.—This is the principal class, and includes all the smaller and finer forms of the Cabbage, which mostly form their hearts quickly, and are of good quality. Those that are cultivated for the leaf-stalks chiefly are distinct species, the flowers being white instead of yellow.

2. Field Cabbages, or Varieties Suitable for Growing in Fields for Cattle.—This class includes all the large-growing and coarser varieties, generally termed Dutch or Drum-head. In a horticultural sense these are of inferior importance to the garden varieties, and need not have been tested at all excepting for the purpose of classification. Their peculiar merits cannot be determined by garden cultivation, although some of them in certain stages and seasons may be very serviceable.

3. Red or Pickling Cabbages.—This class is sufficiently well defined to require no explanation. Being of a red or purplish colour, they are, on that account, preferred for pickling to the green varieties.

From these three general classes the various types or typical varieties—that is, such varieties as appeared to possess sufficiently distinct features of a permanent character—have been selected and carefully described; photographs were also taken of the entire number for future reference, the oldest and most generally adopted name being in all cases preferred. Varieties under other names which were considered identical are given as synonyms, and those varying somewhat, either as to size or season, &c., but possessing the same general characters, are given as selections or varieties. Thus, in the Early York type, the Tom Thumb Early Dwarf is but a finer selection, and in the Nonpareil type, although there is a decided difference in the general appearance of the finer forms of Carter's Heartwell and Wheeler's Cocoa-nut, for all practical purposes they are properly classed as varieties of the Nonpareil.

In this way the whole of the varieties of Cabbages have been reduced to the comparatively small number of

Garden Cabbages	...	...	21	Typical Varieties.
Field Cabbages	...	...	16	" "
Red or Pickling Cabbages	...	...	2	" "

The great tendency of the whole of the Cabbage tribe to variation of character is pretty well understood by most good cultivators and seed growers. It is a matter of selection—good or bad stocks, early or late forms, large or small, &c., being readily produced according to the attention bestowed in the saving of the seed. True or pure stocks are only maintained by the most careful and constant selection of the particular form desired, and the saving of the seed. Seasons, however, and soils also, alter the appearance of Cabbages very much; also the periods of sowing and of planting. The produce, for example, from the same bag of seed may one season be very true, whilst in the next they appear mixed, some late, some early, &c. Some of these variations, being considered improved forms, are selected, a new name is given, and so new (?) varieties are introduced.

Classification of Cabbages.

CLASS I.

Garden Cabbages or Varieties suitable for Garden Culture.

1. ATKINS'S MATCHLESS.
2. BACALAN.
Variety. Late Bacalan.
3. EARLY BOULOGNE.
Synonym. Pétit de Boulogne.
4. EARLY YORK.
Synonym. Small Oxheart.
Varieties (Superfine Early
or Tom Thumb Early Dwarf.
Selections. (Ear'y Dwarf York.
5. ENFIELD MARKET.

Division 1, Early Stocks.

- Varieties (Sprothoro
or Raymeadow.
Selections. (Improved Cabbage.

Division 2, Large Late Stocks.

- Ditto { Daniel's Defiance.
Early Battersea
Wright's Market
Harrison's Victoria
Victoria
Plaw

Division 3, Ordinary Stocks.

- Ditto { Blenheim
East Ham
David's No. 1
Myatt's Early
Large Nonpareil
McEwen's Early
Kemp's Incomparable
Early Rainham
Cattell's Reliance
Vanack
Jersey Wakefield
6. HARDY GREEN COLEWORT.
Synonym. Large Green Colewort
 7. LARGE YORK.
Synonym. Oxheart Large
Cœur de Bœuf gros hâtif
Varieties (Early Large York
or Large York
Selections. (Oxheart
 8. LITTLE PIXIE.
Synonyms. (Oxheart Early
Cœur de Bœuf petit.
Normandy
Early Normandy
 - Varieties (Louviers
or Sélection. (Précoc de Louviers
 9. NONPAREIL.

Division 1, Early Stock.

- Varieties (Dwarf Early
or Carter's Heartwell
Selections. (Heartwell
Wheeler's Imperial

Division 2, Smooth-leaved Stocks.

- Ditto { Cocoa-nut
Wheeler's Cocoa-nut
Monarch
Oliver's Monarch

10. PROMPT DE ST. MALO.
11. POMERANIAN.
Synonym. Fielder
12. POMME D'ORION.
13. TOURLAVILLE.
Early Ingreville
Ingreville
14. ROSETTE COLEWORT.
Synonym. Rose Colewort
15. ST. JOHN'S DAY
Synonyms (St. John's Day Drumhead
" Early Drumhead
(Chou Joannet
St. John's Day Late
Drumhead
St. John's Day Early
Large St. John's Day
Drumhead Early Dutch
16. SUGAR LOAF.
17. WINNIGSTADT.
Synonym. Early Winnigstadt

A. Varieties cultivated for their Leaf-stalks or Miltrils.

18. COUVE TROCHUDA.
Synonyms. { Tronchuda
Portugal
Braganza
Couve Pácco
19. COUVE TROCHUDA.
20. COUVE MURCIANA.
21. CORNISH.
Synonym. Paigaton.

CLASS II.

Field Cabbages or Varieties suitable for Cattle or Field Culture.

1. BLEICHFIELD GIANT.
Synonym. Early Bleichfield
2. BRUNSWICK.
Varieties (Large Brunswick Short-stemmed
or Large Late Flat Brunswick
Selections. (Fottler's Brunswick
Silver Leaf Drumhead
3. DAX DRUMHEAD.
Synonym. De Dax
4. ERFURT DRUMHEAD.
5. FUNEL.
Synonym. Femelle
6. HABAS DRUMHEAD.
7. LATE FLAT DUTCH or DRUMHEAD.
Varieties (American Early
or Early American
Erfurt Large White
Erfurt Small White
Gibson's Drumhead.
Henderson's Early.
Large White Brunswick
Large White Solid
or Magdeburg
Selections. (Late Purple Flat Pall
Marble-headed M a m-moth
Premium Flat Dutch
Robinson's Champion
Drumhead
Van Winkler's Flat
Dutch
Marbled Burzundy
Glen Dwarf Drumhead
8. MONK'S CABBAGE.
Synonym. Large Erappe Drumhead
Erappe Drumhead
9. MORTAGNE.
Synonym. Large Mortagne Drumhd.
10. QUINTAL.
Synonyms. (Flat Dutch Drumhead
Carter's Improved Drum-head
Strasburg Quintal
Dwarf Drumhead
11. SCHWEINFURTH.
Synonyms. (Schweinfurth Early
Drumhead
Schweinfurth Quintal
Large White Schweinfurth
12. ST. DENIS.
Synonym. St. Denis Large Drumhd.
13. VAUGIRARD.

B.—Varieties partaking of the Borecole character, producing but little heart.

14. FEARNUGHT.
15. THICK-LEAVED.
16. GREEN GLAZED AMERICAN.
Synonym. Glazed Cabbage

CLASS III.

Red or Pickling Cabbage.

1. DARK RED DUTCH.
Varieties (Dark Red Erfurt
or Early Dark Red Erfurt
Selections. (Erfurt Blood Red
Small Red.
2. RED DUTCH.
Varieties (Drumhead Red
or Large Red Drumhead
Selections. (Large Red

1. Atkins's Matchless (Nutting & Sons, Minier & Co., Veitch & Sons).—Plant of a dwarf, compact habit of growth. About 9 in. high. Leaves, the outer about 18 in. broad, spreading, somewhat crumpled; of a very dark green colour. Heart small, broad at base,



Drumhead.



Habas Drumhead.



Dax Drumhead.



Pomeranian.



Late Bacalan



Early Bacalan.



Large Fringed.



Large Red.

tapering to a sharp point, very firm and solid. This is a very distinct variety of a deep green colour, varied only by slight shading of red on the edges of the outer leaves at times. An excellent small early Cabbage for autumn use.

2. American Early. See Early American.

3. Blenheim (Nutting & Sons).—See Enfield Market. Good stock.

4. Bacalan (Carter & Co.; Vilmorin).—Plant of tall, strong, but compact growth; from 16 in. to 18 in. high, with long stem. Leaves broad, thick, incurving, with the edges reflexed, and wavy in outline. Hearts large, obovate in shape; from 6 in. to 8 in. in diameter; very solid and excellent. A very handsome and distinct Cabbage. Succeeds either for autumn or spring sowing.

5. Bacalan, Late (Carter; Vilmorin).—A somewhat later form of the preceding.

6. Battersea.—See Enfield Market.

7. Bleichfield Giant (Benary).—Plant dwarf, resting on the ground. Leaves large, spreading, having a bright green shining appearance. Hearts large, flat, and solid, like St. John's Day; very tender and excellent. A very fine early variety of the Drumhead, suitable for autumn use. Sow in spring.

8. Bloomsdale Early (Carter).—This sample contained a mixture of several varieties.

9. Brunswick (Dippé Bros.).—Inferior stock. See large Brunswick.

10. Braganza.—See Couve Tronchuda.

11. Carter's Heartwell.—See Heartwell or Nonpareil.

12. Cattell's Reliance (Veitch & Sons).—See Enfield Market.

13. Chou Joannet (Vilmorin).—See St. John's Day.

14. Cocoa-nut, Wheeler's (Carter, Nutting, Minier).—See Nonpareil. This is a very fine smooth rounded-leaved selection of the Nonpareil, of fine regular conical form.

15. Cornish (Nutting).—Plant tall, having a stout stem of about 8 in. Leaves large, spreading, with wavy serrated outlines; light green in colour. The inner leaves much crumpled and serrated, forming a loose heart. This is a variety of Cabbage much cultivated and esteemed in Cornwall for its thick fleshy midribs, but it is much inferior in this respect to the Couve Tronchuda.

16. Cœur de Bœuf petit (Leroy).—See Little Pixie.

17. Cœur de Bœuf gros hâtif (Leroy).—See Large York.

18. Couve Tronchuda (Carter, Vilmorin).—Plant of medium size, on short thick stem. Leaves, the outer large, broad, with short very thick fleshy stalks and midribs: the colour pale green, with the ribs pure white; hearts very irregularly formed, but sometimes very solid. This is a variety of Cabbage largely grown about Braganza in Portugal, and is of excellent and distinct quality. The fleshy midribs of the leaves are the only parts eaten, being cooked like Seakale. It is somewhat tender; requires to be sown early in spring for use in autumn. Flowers white.

19. Couve Murciana (Barr & Sugden).—Plant tall, loose growing; leaves large, deep green, with thick fleshy midribs; forms a loose heart. This is allied to C. Tronchuda, but much inferior.

20. Couve Pucco (Barr & Sugden).—See Couve Tronchuda.

21. Curled Tronchuda (Vilmorin).—Plant of tall robust growth. Leaves spreading on long thick stalks; much cut and feathered down the stalk, waved and curled along the edges, which are deep green, with the palm flat and almost white; very thick and fleshy. This is very distinct from the Couve Tronchuda, and much inferior, but is often substituted for it.

22. Daniel's Defiance (Nutting & Son).—See Enfield Market. Fine selection.

23. David's No. 1 (Nutting & Son).—See Enfield Market.

24. Dwarf Drumhead (Nutting; Veitch).—See Quintal Drumhead.

25. Dwarf Early (J. Ellam).—See Nonpareil. A very fine selection.

26. De Tourlaville (Vilmorin; Carter & Co.).—Plant of tall robust growth, on long stem. Leaves medium-sized, roundish, on long stalks; deep green. Forms large hearts quickly, which are about 7 in. in diameter, of obovate form, very firm and solid. A distinct variety. Stock not very pure.

27. Le Mortagne (Carter & Co.).—Plant dwarf on very short stem. Leaves spreading, the outer broad, flat, and smooth, the inner somewhat cupped or closing over the hearts; of a pale glaucous green colour, faintly tinged with purple. Hearts large, 8 in. in diameter, flat, very firm and solid; forms early, and keeps long in good condition. Allied to the Drumhead section.

28. Dark Red Dutch (Vilmorin).—A very early variety of Red Cabbage; hearts small, deep purplish red, fleshy, crisp and excellent. Sow in spring for autumn.

29. Dark Red Erfurt (Vilmorin).—Similar to Dark Red Dutch. Fine variety.

30. Dax Drumhead (Carter; Vilmorin).—Plant very dwarf, resting on the soil. Leaves very large, broad, spreading, somewhat crumpled and cockled; of a light green colour; hearts formed quickly, very broad and quite flat, not very solid; very crisp and tender. Very much resembles Habas Drumhead.

31. Drumhead.—See Late Flat Dutch.

32. Drumhead Early Dutch (Vilmorin).—See St. John's Day Late.

33. Drumhead Red (Nutting & Son).—See Red Dutch.

34. East Ham (Carter; Minier; Nutting).—See Enfield Market.

35. Earliest French (Carter).—This sample contained a mixture of several varieties.

36. Early American (Veitch).—A large and very early variety of the Drumhead section. Hearts somewhat more pointed than the ordinary form. Excellent.

37. Early Battersea (Minier).—See Enfield Market.

38. Early Boulogne (Carter & Co.).—Plant of small, compact growth; height 10 in. Leaves small, rounded, spreading and curving backwards from the heart, which thus appears to stand very bare. The leaves are thick, with longitudinal white, fleshy veinings; hearts small, of conical shape, with broad base; very firm, crisp, and tender. This is the earliest of all the Cabbages, but soon bursts, and is inferior to others which are a little later.

39. Early Bleichfield Giant (Benary).—See Bleichfield Giant.

40. Early Dutch Drumhead (Vilmorin).—See St. John's Day Late.

41. Early Dark Red Erfurt (Vilmorin).—A small but early variety of Dark Red Dutch.

42. Early Ingreville (Carter).—See De Tourlaville.

43. Early Dwarf York (Minier).—See Early York. A very fine selection.

44. Early York (Carter; Nutting; Veitch; Vilmorin).—Plant of small compact growth on a short slender stem; height averaging from 10 in. to 12 in. Leaves few, erect, of rounded form, and slightly cupped; very smooth and even; of a deep green colour, with a thick coating of bloom and a few white venations. Hearts small, formed very quickly, of an ovate form with a rounded top; very firm and solid. A very distinct type of Cabbage of very excellent quality. Summer and autumn use. To be sown in spring.

45. Early Large York (Minier).—See Large York, of which this is an early selection, and having the leaves glossy.

46. Early Normandy (Carter).—See Little Pixie.

47. Early Wynn (Carter).—A mixed stock.

48. Early Rainham (Minier).—See Enfield Market.

49. Early Jersey Wakefield (Veitch).—See Jersey Wakefield.

50. Early Winnigstadt (Veitch).—See Winnigstadt.

51. Enfield Market (Carter; Minier; Veitch).—Plant large on short stem. Leaves large, broad, frequently much cockled, and with thick fleshy ribs; bright green in colour. Hearts large, broadly obovate and irregularly pointed; very solid, crisp and tender. This is the great London market Cabbage, and the one most generally cultivated throughout the country under many names, which differ only in proportion to the purity of stock and early or late selections. Formerly it was better known as Vanack, subsequently Fulham or Battersea, but at the present time Enfield Market is the best known; hence its adoption.

52. Erfurt Blood Red Earliest (Benary).—See Dark Red Dutch. A small and fine selection; very early.

53. Erfurt Large White (Benary).—A large and fine late variety of the Drumhead.

54. Erfurt Small White (Benary).—A mixed and inferior stock of Drumhead or Brunswicks.

55. Erappe Drumhead (Vilmorin).—See Monk's Cabbage.

56. Fearnought (Carter).—Plant of strong robust growth, about 2 ft. in height, spreading. Leaves on long stalks; narrow, much waved and irregular in outline like Broccoli; of a deep green colour, the ribs reddish. Hearts small, very loosely formed. A very hardy sort, but very coarse and worthless.

57. Fielder (Benary).—See Pomeranian.

58. Flat Dutch Drumhead (Minier).—See Quintal.

59. Fottle's Brunswick (Carter; Stuart and Mein).—See Large Brunswick.

60. Fumel or Femelle (Vilmorin; Carter).—Plant rather short, spreading. Leaves large, rounded, on long stalks; much crumpled; of a very pale green colour, and very soft in texture. Hearts very large, broad, flat like the Drumhead; very loose. This is a very peculiar and distinct Cabbage. Hearts form very early, but soon open out again and run to seed.

61. Glazed Cabbage (Carter).—See Green Glazed American.

62. Gibson's Drumhead (Nutting).—See Large Brunswick.

63. Glen Dwarf Drumhead (Nutting).—See Drumhead.

64. Green Glazed American (Vilmorin).—Plant tall, on long stem. Leaves few, medium sized, rounded, of a shining deep green colour.



Dwarf Red



Winnigstadt.



Dwarf York.



Dwarf Early Erfurt.



Vaugirard.



Dwarf Oxheart.



Sugar-loaf.



St. Denis.



Brunswick.



Large Oxheart.



Large York.



Short-stalked Dutch.

Forms very small hearts. Can scarcely be termed a Cabbage more properly a Borecole. Much appreciated in America, where it is almost exclusively grown.

65. Heartwell (Carter).—A very fine close-growing selection of the Nonpareil.

66. Habas Drumhead (Carter; Vilmorin).—Plant very dwarf, resting on the soil. Leaves large, about 2½ ft. in diameter, lying flat, much crumpled, of a very pale green colour, and very thin and tender. Hearts form quickly, very broad and flat, frequently 10 in. to 12 in., and not more than 2 in. in thickness. Very soft and rather tender. A very pretty and distinct early flat Cabbage.

67. Hardy Green Colewort (Carter; Veitch).—Plant of compact growth; about 12 in. in height. Leaves of medium size, of a very deep green colour, with a tinge of red. Hearts formed very slowly and late, medium size, of a broad conical form. An excellent variety for late autumn use; very hardy. It is generally sown in May, planted out thickly for use in autumn and winter, as Coleworts or Greens. Very fine quality.

68. Henderson's Early (Carter).—A variety of the Drumhead. Inferior.

69. Improved Stuart and Mein. —An early selection of Enfield Market; very good.

70. Improved Drumhead (Carter).—See Quintal.

71. Ingreville (Vilmorin).—See De Tourlaville.

72. Jersey Wakefield (Carter; Veitch).—A large strong-growing form of the Enfield Market type, but much coarser and inferior.

73. Kemp's Incomparable (Carter & Co.).—See Enfield Market.

74. Large Brunswick Short Stemmed (Vilmorin).—Plant very dwarf, almost resting on the ground. Leaves very large, broad, lying flat on the surface, very thick and smooth; of very pretty pale glaucous green. Hearts large, flat, averaging about 10 in. in diameter. Very smooth, even, and regularly formed, and very firm. Hearts form early, and keep long in good condition. A very good variety of the Drumhead type.

75. Large Late Flat Brunswick (Vilmorin).—See large Brunswick Short Stemmed.

76. Large White Brunswick (Benary).—See Late Flat Dutch.

77. Large Frappe Drumhead. —See Monk's Cabbage.

78. Large Green Colewort (Minier).—See Hardy Green Colewort.

79. Large Mortagne Drumhead (Vilmorin).—See De Mortagne.

80. Large Oxheart (Vilmorin).—See Large York.

81. Large St. John's Day (Carter).—See St. John's Day Late.

82. Large White Solid Magdeburg (Benary).—A good selection of Drumhead or Flat Dutch.

83. Large White Schweinfürth (Benary).—See Schweinfürth.

84. Large Red Drumhead (Vilmorin).—See Red Dutch.

85. Large Red (Carter).—See Red Dutch.

86. Large Nonpareil (Nutting).—See Enfield Market.

87. Large York (Carter; Vilmorin).—A large tall-growing form of the York Cabbage, of exactly similar appearance to the early York, but growing to more than twice its size. Very excellent. This is the large Oxheart of the French.

88. Large York (Veitch; Nutting).—An early hearting form of Large York, having the leaves glossy or shining and destitute of the usual bloom.

89. Late Bacalan (Carter; Vilmorin).—See Bacalan.

90. Late Flat Dutch (Vilmorin).—Very large, and strong growing. Heads very large, solid; pale green. This is the ordinary Drumhead Cabbage, much grown in fields for cattle.

91. Late Purple Flat Pole (Nutting).—A large and late variety of Drumhead.

92. Little Pixie (Carter; Nutting; Veitch).—Plant of very small, close compact growth, averaging about 8 in. in height. Leaves short, rounded, smooth; of a light green colour. Hearts large for size of plant, of conical form, with a broad base and rounded points. Hearts form very early, and are of excellent quality. Good for late summer and autumn use. Sow in spring; may be planted 15 in. apart. This is the same as the small Oxheart of the French.

93. Louviers (Vilmorin).—A larger form and very fine selection of Little Pixie. Very good.

94. Marble Headed Mammoth (Carter).—See Late Flat Dutch.

95. Marbled Burgundy Drumhead (Vilmorin).—See Late Flat Dutch.

96. McEwen's Early (Nutting).—See Enfield Market.

97. Monarch (Nutting).—See Nonpareil.

98. Monk's Cabbage (Carter).—Plant large, spreading on a short stem. Leaves, the outer broad flat, the inner much cupped and somewhat reflexed; very thick and of deep glaucous green colour. Hearts large, roundish, flattened, from 7 in. to 8 in. in diameter; very deep green, tinged with red; very solid yet crisp and tender. A fine and handsome late Cabbage, Drumhead type.

99. Wyatt's Early (Nutting).—See Enfield Market.

100. Nonpareil (Carter; Minier; Nutting; Veitch).—Plant dwarf, seldom exceeding 12 in. in height; of close compact growth. Leaves

light green, of medium size, rounded at the point, somewhat cockled and crumpled. Hearts of broad conical form, from 4 in. to 6 in. in diameter, formed very early, very firm and solid, and of excellent quality. One of the most esteemed of Cabbages for general use. Not quite so large as Enfield Market, but of much the same character. The larger forms of the one may pass for the other, and *vice versa*.

101. Normandy. —See Little Pixie.

102. Oxheart Early (Vilmorin).—See Little Pixie.

103. Oxheart (Carter).—See Large York (Veitch).

104. Oxheart Large (Vilmorin).—See Large York.

105. Oliver's Monarch (Stuart and Mein).—See Nonpareil.

106. Paignton (Nutting).—See Cornish.

107. Plaw (Nutting & Son).—See Enfield Market.

108. Pomeranian (Carter; Vilmorin).—Plant tall, averaging from 2 ft. to 2½ ft., on long stem. Leaves large, of long pointed form and of a pale glassy green colour. Heads of long conical form, sharply pointed, averaging from 14 in. to 16 in., and from 6 in. to 8 in. in diameter; very solid and of good quality. A very distinct variety, the long pointed heads being very remarkable. Sown in autumn, becomes fit for use the following summer. An excellent sort in dry seasons.

109. Pomme d'Orion (Leroy).—Plant large, spreading, on short stem. Leaves large, broad, spreading, with a wavy outline, and somewhat reflexed, thus exposing and showing the heart rather conspicuously; hearts of medium size, obovate pointed, very fleshy, tender, crisp, and moderately solid. A distinct variety but not of much merit.

110. Portugal (Barr & Sugden).—See Couve Tronchuda.

111. Prefin de Boulogne (Leroy).—See Early Boulogne.

112. Précoce de Louviers (Vilmorin).—See Louviers.

113. Premium Flat Dutch (Carter).—See Late Flat Dutch. A large late variety.

114. Prompt de St. Malo (Leroy; Vilmorin).—Plant tall and rather thin. Leaves long, narrow; hearts large, of obovate pointed shape and of a light green colour; the ribs very prominent and fleshy; very solid, crisp and tender. An early Cabbage but stock very inferior.

115. Quintal or Cwt. Drumhead (Carter; Vilmorin).—Plant very dwarf, almost resting on the ground. Outer leaves large, broad, rounded, with wavy outline, those approaching the heart prettily reflexed along the edges, giving the plant a very distinct and handsome appearance. It is of a uniform light glaucous green colour; the ribs white and very prominent; hearts large, flat, averaging from 8 in. to 10 in. in diameter and from 2 in. to 3 in. in thickness; very solid yet tender and excellent; hearts form rapidly and keep well. One of the very best of the Drumhead section for garden cultivation.

116. Raymeadow (Wheeler).—An early and fine selection of Enfield Market.

117. Red Dutch (Minier; Nutting; Veitch).—Plant tall, of strong vigorous growth. Leaves large, rounded, of a dull purplish-red colour, very thickly covered with a greyish-blue bloom; hearts large, very solid, of a very deep red colour. Excellent. This is the ordinary Red Cabbage.

118. Robinson's Champion Drumhead (Nutting).—See late Flat Dutch.

119. Rosette Colewort (Carter; Minier; Veitch).—Plant of a very distinct style of growth, small, compact. Leaves small, rounded, short, cupped or incurved and hooding over heart, thus forming a perfectly flat or square top; of a deep green colour tipped with rose; hearts small, but becoming very firm if sown at the proper season. It should be sown in May and planted out about 15 in. apart for use in autumn as Coleworts or small Cabbages. If sown at other seasons it grows very differently, and is much inferior. Much cultivated in the market gardens round London, and deservedly esteemed.

120. Schweinfürth Quintal (Vilmorin).—Plant large and spreading, from 18 in. to 20 in. in height, on a short stem. Leaves thin, very large, broad, the outer flat and spreading, the others gradually becoming more cupped the nearer to the heart; colour pale green, shining or destitute of the usual bloom, the outer edges of the leaves tinged with dull red; hearts large or very large, roundish or obovate in shape, and seldom becoming very solid; may be easily crushed with the hands like a Lettuce. This is a very early variety of the Drumhead section, but unsuited for gardens.

121. Schweinfürth Early Drumhead (Minier).—See Schweinfürth Quintal.

122. Silver Leaf Drumhead (Carter & Co.).—Plant dwarf, like Short-stemmed Brunswick; heads large, flat. Leaves light green, tinged on the outer edges with dull red. Coarse.

123. Small very Early Erfurt Drumhead (Vilmorin).—Plant dwarf, almost resting on the ground; greatly resembling St. John's Day, but inferior in texture and quality. Leaves small, rounded, smooth; hearts of medium size, flat, very smooth, evenly formed, and very solid. A small early and very pretty variety of Drumhead.

124. Sprotboro (Nutting & Son; Minier).—See Enfield Market.

125. Small Red (Carter).—See Dark Red Dutch.
 126. Small Oxheart (Carter & Co.).—See Early York.
 127. St. Denis (Carter).—Plant dwarf, on a short stem, spreading. Leaves very large, thick, rounded, lying flat; of a deep green colour, with a very thick blue bloom. Hearts large, roundish, very firm and solid, some having a tinge of brown, but generally of a uniform deep green. Forms early and keeps long in good condition. A very pretty Cabbage.
 128. St. Denis Large Drumhead (Vilmorin).—See St. Denis.
 129. St. John's Day (Carter; Nutting).—Plant very dwarf, entirely resting on the ground, seldom exceeding 6 in. or 7 in. in height, and about 18 in. or 20 in. in breadth. Leaves spreading broad, very compactly placed; of a deep green colour. Hearts large, broad, flat, from 6 in. to 8 in. in diameter; very firm, solid, yet crisp, tender, and fleshy. Forms early, and is of excellent quality. One of the very best Cabbages for autumn use. Sow in April and plant out 15 in. apart.
 130. St. John's Day Early (Minier).—See St. John's Day Late.
 131. St. John's Day Drumhead (Veitch).—See St. John's Day.
 132. St. John's Day Early Drumhead (Vilmorin).—See St. John's Day.
 133. St. John's Day Late Drumhead (Vilmorin).—A larger and later form of St. John's Day.
 134. Strasburg Quintal (Benary).—See Quintal.
 135. Sugar Loaf (Carter; Nutting; Veitch; Vilmorin).—Plant of a very distinct character, of rather tall growth. Leaves long, erect, spoon-shaped, and much cupped; of a very pale green colour, but covered with a thick bloom, and leathery texture. Hearts of long ovate shape; formed very loosely, the leaves merely hooding over in the manner of a loose Cos Lettuce, so may be easily unfolded. Forms early, but of poor quality, not worthy of cultivation.
 136. Superfine Early (Vilmorin).—See Early York. A very fine selection.
 137. Thick-leaved (Carter; Vilmorin).—Plant of tall vigorous growth, on long stem. Leaves large, spreading, very thick and leathery; of a pale green colour, with very prominent broad white midribs and veinings, giving the plant a very white appearance. The edgings or borderings much waved in outline, and recurving over the heart very prettily. Heart medium size, broad, very solid, but is apt to burst open rather quickly. A very distinct but coarse and uncertain variety.
 138. Tom Thumb Early Dwarf (Minier).—See Early York. A very fine selection.
 139. Tourlaville (Vilmorin).—See De Tourlaville.
 140. Tronchuda.—See Couve Tronchuda.
 141. Vanack.—See Enfield Market. Vanack is the old and original name of the Cabbage now generally known as Enfield Market.
 142. Van Winkler's Flat Dutch (Carter).—See Drumhead or Flat Dutch.
 143. Vaugirard (Carter; Leroy).—Plant of medium height on short stem. Leaves large, broad, flat and smooth, very thick and fleshy, of a very deep green colour, with a thick heavy bloom, those near the heart somewhat waved and tinged with purple, like the red Cabbage. Hearts large, roundish, moderately firm and solid, but somewhat coarse.
 144. Vaugirard Winter Drumhead (Vilmorin).—See Vaugirard.
 145. Victoria, Harrison's (Harrison).—See Enfield Market.
 146. Wheeler's Cocoa-nut (Wheeler).—See Cocoa-nut or Nonpareil.
 147. Wheeler's Imperial (Nutting; Veitch).—See Nonpareil. A fine early selection.
 148. Winningstadt (Benary; Carter; Nutting; Veitch; Vilmorin).—Plant of medium size, on short thick stem. Leaves, the outer large, spreading, smooth; of a deep green colour, with a heavy bloom, and very thick and fleshy. Hearts very large, broad, conical, and sharply pointed; the point frequently twisted somewhat on one side; very solid, and of excellent quality. A very distinct and excellent Cabbage for late summer and autumn use; should be sown in August, or very early in spring.
 149. Winningstadt Sugar Loaf (Benary).—See Winningstadt.
 150. Wright's Market (Minier).—See Enfield Market.

Garden Cabbages arranged according to their seasons, representing all the types or typical varieties in cultivation :—

Early Varieties.

- | | |
|-----------------------|-------------------|
| 1. Atkins's Matchless | 5. Nonpareil |
| 2. Early Boulogne | 6. St. John's Day |
| 3. Early York | 7. Sugar Loaf. |
| 4. Little Pixie | |

Mid or General Season Varieties.

- | | |
|------------------------|----------------------|
| 8. Enfield Market | 11. Tourlaville |
| 9. Large York | 12. Rosette Colewort |
| 10. Prompt de St. Malo | 13. Winningstadt |

Late Varieties.

- | | |
|--------------------------|-------------------|
| 14. Bacalan | 16. Pomme d'Orion |
| 15. Hardy Green Colewort | 17. Pomeranian |

Selection of Cabbages best suited for sowing in spring, for an autumn supply, those marked * being most recommended :—

- | | |
|----------------------|--------------------|
| Atkins's Matchless | * Nonpareil |
| Early York | * Rosette Colewort |
| Hardy Green Colewort | * St. John's Day |
| Little Pixie | * Couve Tronchuda |

Selection of Cabbages best suited for sowing in autumn, for a spring and summer supply :—

- | | |
|----------------|--------------|
| Little Pixie | Nonpareil |
| Enfield Market | Winnigstadt. |

—"Royal Horticultural Society's Journal."

[The woodcuts used with this paper are published on our own responsibility to illustrate it, and did not appear in the "Society's Journal."]

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

AUGUST 12.

THIS meeting, taken in conjunction with the exhibition of the southern section of the National Carnation and Picotee Society, was an unusually interesting one. Amongst its leading features were some superb collections of cut Roses, and fine groups of tuberous-rooted Begonias. Several new plants, submitted to the notice of the floral committee, were awarded First-class Certificates as follows :—

Gladiolus hybridus Lemoineanus (Lemoine).—A very fine variety, the result of a cross between *G. purpureo-auratus* and *G. gandavensis*, alluded to in another column.

Nepenthes Viellardi (Veitch).—A handsome Pitcher-plant, similar in habit to *N. distillatoria*, but very distinct from any other kind. It has deep green leaves with a singular hoariness on the upper surfaces, and also pitchers, which are of medium size, and entirely of a deep red colour.

Sarracenia formosa (Veitch).—A very elegant hybrid, raised between *S. psittacina* and *S. variolaris*. It partakes of the beautiful markings and peculiar form of the former species, combined with freer growth and the larger size of the latter.

Iris Kämpferi Charles Maries (Veitch).—A beautiful form of this popular hardy plant, with flowers of very large size, of a pale mauve tint, quaintly marbled with blotches of a darker hue.

Iris Kämpferi The Jersey Belle (Veitch).—Another novelty of chaste beauty; the standards in this variety are as broad as the falls, and are arranged on the same plane; they are pure white, with a bright orange spot at the base of each division.

Iris Kämpferi Sir Stafford Northcote (Veitch).—Similar in form to the foregoing, but larger in size, and of a rich deep purple, which forms a beautiful contrast to the orange spots on each segment.

Stanstead Rival (Laing).—One of the finest single-flowered Begonias yet raised. It is robust in habit, and has large glossy green leaves; the flowers are five-petalled, arranged in a saucer-like manner, and are of a rich deep crimson colour.

Coleus Tricolor (Cannell).—A superb variety, very distinct, and one which richly deserves the recognition accorded to it. It is of good habit, with moderate-sized leaves; its colour is a deep dull red, with a central broad band of bright red, and the margins of a rich emerald green.

Fuchsia Eclipse (G. Smith).—A pretty variety with a large double rich purple corolla and bright red sepals.

A Botanical Certificate was awarded to

Conandron ramondioides (Veitch).—A highly interesting Japanese plant, alluded to in another column.

In addition to these, several other new or rare plants were contributed from various sources. Messrs. Veitch & Son showed a very fine variety of *Cattleya gigas* named *Normani*, remarkable for its free-flowering tendency. The plant exhibited had six expanded flowers. The true *Vanda insignis* was shown in fine condition, as was also *Cypripedium euryandrum* and *Zygopetalum Sedeni*, two beautiful hybrid Orchids previously referred to. A remarkably well-grown plant of *Saccolabium Blumei majus*, with four racemes of flower, one of which was over 15 in. long, was also in this collection, as were likewise *Sarracenia Chelsoni* and *S. Stevensi*, two fine hybrid Pitcher-plants with highly-coloured and beautifully-netted

leaves. Other handsome hybrid Pitcher-plants were *Nepenthes Wrigleyana* and *Ratcliffiana*, the result of crosses between *N. Hookeri* and *N. phyllanthora*. The same firm also sent some finely-flowered plants of the pretty *Olearia Haasti*, a hardy New Zealand shrub, and a basketful of the Japanese variety of the old *Dracocephalum Ruyschiana*. Besides the varieties of Kämpfer's Iris certificated were a fine reddish-coloured form named Sir Richard Wallace, Mrs. Cornwallis West, and Prince Imperial, all of high merit, and distinct in colour. Mr. B. S. Williams contributed *Cœlogyne Massangeana*, a handsome Orchid, with a long pendulous raceme of flowers of a creamy-white colour, the lip of which is streaked and spotted with rich chocolate. He also showed *Adiantum mundulum*, an elegant Maidenhair Fern of dwarf, compact habit. Messrs. F. & A. Smith, Dulwich, sent plants of the graceful feathery *Asparagus (A. plumosus)*, which will doubtless prove an excellent decorative climbing plant. A group of Balsams were shown by the same exhibitors, which, though their flowers were fine and double and rich variety of colour, showed unmistakably the lateness of the season. A well-grown plant of *Hydrangea paniculata grandiflora*, sent by Mr. Wills, admirably showed its free-flowering property and the pure whiteness of its blossoms. Messrs. Osborn & Sons, Fulham, exhibited a well arranged group of fine foliaged plants, consisting chiefly of Palms, Crotons, Ferns, *Dracænas*, *Sonerilas*, &c. A fine bank of tuberous-rooted *Begonias*, shown by Messrs. J. Laing & Co., Forest Hill, comprised some remarkably beautiful seedlings, and several showed a marked advance on the existing kinds. The double white flowered *Alba plena* was shown amongst them, and also the delicate *Reine Blanche*, which is the best white yet shown. The same exhibitors also sent a large collection of *Phloxes*, consisting of most of the leading varieties of these showy plants. From Messrs. Lee & Son, Hammersmith, came a group of *Begonias*, amongst which were two fine varieties, viz., *Crimson King* and *Charmer*. Cut branches of a variegated variety of *Cornus Mas* named *aurea elegantissima* were also shown. Mr. Tong, Southgate, furnished well-grown plants of *Begonia*, *President*, and *Hecla*, also plants of *Begonia Lucienne Bruant*, a prettily mottled-leaved plant. Several *Coleus* were shown by Mr. Lloyd, Brookwood Asylum, some of which were very handsome. A fine basketful of *Coleus Verchaffelti grandis* was shown by Mr. G. Weedon, Ealing, which as shown was decidedly superior to the type. Cut blooms of *Pelargoniums*, French *Marigolds*, *Antirrhinums*, and *Verbenas*, were sent by Mr. Cannell, Swanley, and were much admired, especially the *Verbenas*, of which there was a large collection, representing some of the finest kinds in cultivation, large both in truss and pip, and exhibiting much variety in colour. Cut flowers of *Tropæolums* and French *Marigolds* were shown by Messrs. J. Carter & Co., also some examples of their *Auricula*-flowered strain of *Sweet Williams*, the trusses and pips of which are large, and the colours pure and well defined. From the same exhibitor came several beautiful and distinct varieties of *Coleus*.

Roses.—An excellent collection of these came from the Waltham Cross Nurseries consisting of superb examples of the finest varieties; amongst them were the new *Duchess of Bedford*, which is undoubtedly one of the finest of new *Roses*; its flowers are large and of good form, rich velvety-crimson in colour overlaid with a purplish lustre. Countess of Rosebery, another beautiful *Rose*, was shown in fine condition, as were also several unnamed promising seedlings. May Quennell, Baroness Rothschild, *Magna Charta*, *Paul Neron*, *Black Prince*, and many others were excellent, and were awarded a silver *Flora* medal. From the Cheshunt Nurseries came a similar contribution, which was similarly awarded. It contained fine examples of the leading varieties, amongst which were *Lady Darnley* and *Glory of Cheshunt*, two very fine kinds both as regards form and colour, especially the latter, which is of a brilliant hue nearly approaching scarlet. A silver *Banksian* medal was awarded to Mr. C. Turner, Slough, for several stands of *Roses*, amongst which was one filled with fine blooms of the well known *Alfred Colomb*, which still holds its own against all comers. Mr. Wilson exhibited a large *candelabrum*-like branch of the *Armenian Sea Holly (Eryngium giganteum)* grown in his garden at Weybridge.

Fruit and Vegetables.—A first-class certificate was awarded to *Melon Victory of Bristol*, a handsome and finely-netted variety sent by Mr. W. Carmichael, Newton Court, Bury St. Edmunds. Fruits of the singular *Himalayan White-stemmed Bramble (Rubus biflorus)*, which have a pleasant acid flavour, were sent from the Society's garden. Messrs. James Carter & Co. sent samples of their *Telephone Pea* for comparison with *Culverwell's Telegraph*, with which it has been alleged to be synonymous. The committee, however, decided that the two varieties were distinct, and confirmed the certificate awarded by it last year to Carter's *Telephone*. The same firm also showed a new *Pea* called Carter's *Stratagem*, and similar contributions were sent by Mr. Gilbert, Burghley, under the name of *Hobart Pacha*, and *Exeter Marrow Pea* came from Mr. Robert Veitch of Exeter.

NATIONAL CARNATION AND PICOTEE SOCIETY.

THE annual exhibition of the southern section of this Society was held on this occasion at South Kensington, in connection with the Fruit and Floral Committee Meeting just referred to. Though the exhibitors were for the most part from the southern counties, there were contributions from as far north as Yorkshire. On the whole it was a fairly representative display, for most of the classes were well filled, and in most of them there was a keen competition. The class for plants in pots, however, was only represented by one exhibitor; they were, however, well grown, and were deservedly much admired, and probably would have been even more appreciated had it not been for the inevitable collars of white cardboard which encircled the flowers, an antiquated practice which should long ago have been obsolete.

First-class Certificates were awarded to

Picotée Dr. Abercrombie (Turner).—A large, full flower, with heavy red edge, the ground being pure white, and the petals smooth.

Picotée Baroness Burdett-Coutts (Turner).—A fine flower, large, and full, in the white very pure, and the purple edge well defined.

Carnation Heather Bell (Turner).—A beautiful variety, with the flowers unusually large and very full; petals crisped, and of a delicate blush tint.

Carnation Coronor (Turner).—Also a beautiful kind, with fine, full blossoms of a rich deep cerise colour.

Picotée Clara Penson (Wilmer).—A well-formed large flower, with the white clear and pure, and a light purple edge.

The premier flowers in the exhibition were *Picotées* Mrs. Payne, a heavy rose edge, shown by Mr. Douglas, Loxford Hall, and *Carnation Sybil*, a well-marked rose flake exhibited by Mr. Turner. This exhibitor also took the highest award for the best twenty-four blooms of *Carnations*. Amongst these were *Sybil*, *Squire Trow*, *James Taylor*, *J. D. Hextall*, *Clipper*, *Mars*, *Graceless Tom*, *Mayor of Nottingham*, *Rifleman*, *Admiral Curzon*, *Sporting Lass*, and *G. F. Wilson*. Mr. Dodwell was equal first with a fine collection, including *Unexpected*, *James Douglas*, *Florence Nightingale*, *Mars*, *Annihilator*, *Christigala*, *Dreadnought*, *Sybil*, *William Murray*, *Admiral Curzon*, *Captain Stott*, and *James Merryweather*. The next in point of merit was the *Loxford Hall* collection, which comprised amongst others fine blooms of *Mars*, *Sarah Payne*, *Admiral Curzon*, *Juno*, &c. The best twelve included Mrs. Llewellyn, *George Rudd*, *James Merryweather*, *John Ball*, &c. Mr. Douglas was again second in this class with a good selection. The premier half-dozen blooms consisted of *James Douglas*, *Sybil*, *J. D. Hextall*, *Admiral Curzon*, *Sportsman*, and *Annihilator*. The exhibits in the class for single specimens of *Carnations* were numerous; *Admiral Curzon* was the best bloom amongst the *Scarlet Bizarres*, and the same kind took the third and fifth place. A seedling of Mr. Dodwell's and *True Briton* were second and fourth respectively. For *Crimson Bizarres* *J. D. Hextall* was the best flower; for pink *Bizarres* Mr. Douglas took all five places with *Sarah Payne*, *James Taylor*; for purple flakes *Squire Trow*, *James Douglas*, *Squire Meynell*, and *Juno* were placed in the order named; scarlet flakes were represented best by *Clipper* in the first and second places, *Sportsman* in the two following. *Sybil* was represented best in the rose flakes, also in all the other places except the third, which was taken by *John Keet*.

The best two dozen blooms of *Picotées* came from the Slough Nurseries, and comprised very fine examples of Mrs. Allcroft, *Her Majesty*, *Dr. Abercrombie*, *Leah*, *Lady Baston*, *Baroness Burdett-Coutts*, *Zerlina*, *Lily of the Valley*, *Rev. J. B. M. Camm*, *Horace Mayor*, *Lucy*, *Miss Frowd*, and *Empress Eugénie*. In the next best collection were excellent blooms of *Zerlina*, *Royal Visit*, *Alliance*, *Cynthia*, *Novelty*, *Alice*, *Rev. J. D. Horner*, *John Smith*, *Brunette*, and *Beauty of Cheltenham*. The class for twelve blooms was well filled, Mr. Dodwell was first with an evenly matched collection, and scarcely inferior was the next from Mr. Douglas. The best collection of six included *Miss Wood*, *Mr. Lord*, *Amy Lord*, *Morna*, and *Mrs. Summers*. For single specimens there was a numerous competition. For red heavy-edged varieties *Dr. Abercrombie* was the best flower, followed by *Princess of Wales*, *John Smith*, *Colonel Clerk*. Those with red light edges were Mr. A. Chancellor, *Violet Douglas*, *Emily*, *Mrs. Bower*, and *Thomas William*. Purples were represented by *Norfolk Beauty*, *Alliance*, *Zerlina*, *King of the Purples*, with heavy edges; *Minnie*, *Her Majesty*, *Ann Lord*, with light edges. Rose or scarlet kind with heavy edges were represented by *Royal Visit*, *Lucy*, *Mrs. Payne*, and *Edith Dombain*; and the light-edged by Mrs. Allcroft and *Miss Wood*. The class for blooms with yellow grounds included *Prince of Orange*, *Mrs. Frampton*, *King of yellows*. The plants in pots consisted of *Carnations*—*Rose of Stapleford*, *Satisfaction*, *Illuminator*, *Falconbridge*, *Clipper*; *Picotées*—

Norfolk Beauty, Brunette, Rival, Purple, &c. A list of awards will found in our advertising columns.

Royal Botanic Society.—The 40th anniversary of this society was held the other day at the Gardens, Regent's Park, Lord Chesham in the chair. The annual reports of the council, auditors, and secretary were read. From these it appears that the society has passed through a much more successful year than, from the extraordinary weather, the council might have reasonably expected. New subscribers to the number of 115 had joined the society since the last anniversary, being three more than the number elected during the previous year, and also above the average. The receipts from subscriptions, under all items except that of life compositions, had also been larger, and those from the exhibitions reached a very fair average. Exhibitions of spring flowers and of summer flowers and fruit had been carried out with the success for which the society is famous, and special exhibitions of Rhododendrons by Mr. Anthony Waterer, and of annuals grown in pots by Messrs. Carter, had also been made. The latter were very useful, especially to the million whose domicile must necessarily be in towns, showing how much may be done in the way of getting a few cheering flowers on the window sill by the expenditure of a few pence for seeds and a little ingenuity in providing a pot, box, or pan in which to grow them. The secretary's report referred to the more technical if not the more popular objects of the society—namely, the study of botany in its relation to medicine, the arts, and manufactures. A total of 540 free students' and artists' tickets had been issued for terms of from one to six months each, and about 25,000 cut specimens given to them, and nearly 29,000 distributed to the several medical and art schools of the metropolis. A valuable consignment of plants and seeds had lately been received from the Government of Madras, including the Mangosteen, Nutmeg, and other economic plants, and seeds of the Teak timber tree, from which several healthy plants had been raised. Interesting additions have been made to the museum, including Olives grown at the Cape of Good Hope, and Coffee and Vanilla cultivated in Tahiti. The elaborate meteorological observations carried on in the Gardens for years, and the annual extracts published with the reports, were very useful for comparison, especially for extraordinary seasons like the present; from these extracts it appears that the mean of the readings for the first six months of this year gave a net mean temperature of 49·35, against that of last year of 54·7, and the rain for the same period an excess of nearly 3 in. Thus the work of the society, although carried on by private individuals at their own cost, may in many respects be looked upon as of national interest.

FRUIT AND DIARRHŒA.

As usual at this time of the year, deaths from diarrhœa are frequent, and the outcry against fruit is loud; for fruit in general, or stone fruit in particular, is charged with being a principal cause of this mortality. But, in spite of this, people will eat fruit, and will not be frightened out of doing so; for human nature declares more strongly in its favour than for any other article of food—the more unsophisticated the palate, the stronger is the attraction. Is the charge, then, true? Has our Maker made us with such a strong natural taste for that which is hurtful? The public do not seem to be sufficiently aware that fruit is a food, not merely a medicine or a luxury—a food, too, upon which it is possible to live entirely, and with the highest degree of health and strength. It is not unknown among us for individuals to live absolutely on fruit for twelve months at once, and get through an almost incredible amount of both sedentary and active physical work upon it. I have myself tested it in a comparatively small way by walking from Liverpool through Chester, Hereford, Ross, Gloucester, down to Bath, thence to London, and back through Bedford, Leicester, Derby, Buxton, and Manchester, to Liverpool again—a distance of above 500 miles, being an average of at least 35 miles a day for fifteen days, in very hot weather (of 1878), without taking anything either to eat or drink except in the shape of raw fruit. During this time I was three nights without getting to bed, two of which were in succession, making three days and two nights tramping at a spell; and yet I did not feel a bit jaded, but felt fresh to the last, so much so that the last day's walk (from Manchester to Liverpool) I did right off without a rest. This was straight from the confinement of an office, and by one of more than ordinarily sedentary habits. I ask, therefore, must there not be more nourishment, and that of the best kind, in fruit than it generally takes credit for? Yes, that may be all very fine, but the deaths from diarrhœa remain palpable and undeniable facts. Certainly, but I think those deaths can be rationally accounted for. As to eating stone fruit, I have eaten more of it in one summer than any than any of those are alleged to have died from it. Con-

sider how the fruit is eaten, and see if we cannot find a better reason there. It is commonly treated merely as a plaything for the palate, and eaten either between meals, or at the tail end of a meal, when people have had at least enough to eat already. Disagreeable effects are then complained of—and no wonder. For my part, considering the ill-assorted mixtures people take in the shape of food when well, and the mixtures they take in the shape of medicine when ill, I am astonished that there are not many more deaths. If people would cultivate simplicity of tastes with regard to their food, and let fruit form a regular part of their meals, they would find an increased pleasure therein, and we should no longer hear complaints about the unhealthiness of fruit.—E. S. HYATT, in the *Liverpool Daily Post*.

ARRANGEMENT IN WINDOW GARDENING.

It is a rather curious fact that the taste for window gardening often appears to partake of a local character. Whilst in some small towns and in many villages one sees almost every window more or less well furnished with flowering and fine-foliaged plants, in others but slight evidence is afforded of any great interest being taken in floriculture. This fact is rather difficult of explanation, as the opposite extremes may be met with in places but a few miles distant from each other. I am acquainted with a town in this neighbourhood where the love of flowers, if one may judge by the bare, plantless windows, must be at a very low ebb. A neighbouring village is as conspicuous in the opposite direction, most of the windows being filled with plants in good condition, some of the collections displaying considerable variety and exhibiting good taste in the arrangement. Where the taste for window gardening has become so developed it would probably be found that one or two individuals were at some time mainly instrumental in creating and fostering a love for plant culture. I am inclined to believe that lack of knowledge rather than want of taste will account for the bare, cheerless, flowerless aspect which many dwellings present the whole year through. It will generally be found that the cottage gardens in the immediate neighbourhood of a large well-managed private establishment are better kept and cropped than those whose owners never enjoy the advantages of witnessing the best methods of culture. Those who work or who have worked in private gardens, if only in the modest capacity of garden labourer, invariably grow better vegetables, and endeavour to beautify their dwellings to a much greater extent than the ordinary farm labourer or the mechanic. In the same way a well-furnished window in a town or village will stir the energies and excite the emulation of the inhabitants generally; consequently, those who devote both time and pains to the task of beautifying their dwellings with Nature's floral treasures may have the satisfaction of knowing that they may be the means of encouraging others to go and do likewise. I have, I fear, wandered somewhat from the subject upon which I would wish to make a few remarks viz., the arrangement of plants in windows. Professional gardeners are fully aware of the importance of skilful grouping; in fact, in the present age of extensive floral decoration, plants have to be grown either naturally, possessing the various forms necessary for producing graceful effects and pleasing continuations, or they must be trained in a manner best calculated to fit them for the purpose for which they may be required. A few days since I remarked a window garden so pleasingly and effectively arranged as to present a marked contrast to all others in the vicinity. The plants were of the ordinary description, but they were evidently chosen as being more suited for the place. Not only did they exhibit signs of painstaking culture, but the arrangement showed an intelligent appreciation of the good effects to be produced by judiciously intermingling such plants as vary considerably both in form and colour. The form of arrangement will naturally depend upon the shape and aspect of the window. Those windows which project slightly from the dwelling best admit of tasteful grouping being carried out in them; but in almost every dwelling space enough will be found to allow of taste and judgment being exercised. Although no arbitrary rules can be laid down for plant arrangement, yet some general instructions may be given which may prove of service to the inexperienced. In the first place no window can be considered well furnished unless it contains graceful drooping plants suspended in a basket. Some of the plants best fitted for window culture lend themselves well to this treatment. Some, such as the Wandering Jew Saxifrage, are of extremely easy culture, and a well-grown specimen, with its pendulous offsets drooping down and intermingling with the other inmates of the window, certainly presents a very attractive appearance. The common Musk, again, displays itself to greater advantage when grown in this manner. Then we have such plants as *Russelia juncea*, *Dracæna vivipara*, *Panicum variegatum*, and many beautiful kinds of Ferns, which thrive admirably in such situations, and with good attention

will last in beauty for an indefinite period. Tropæolums, Maurandias, Lophospermum variegatum, Cobæa variegata, and Ives may also be cited as especially suitable for the purpose. My intention is, however, rather to indicate the description of plants needed than to give a list of kinds, as the grower will, in the course of his experience, meet with a number of graceful-habited subjects well adapted for this mode of culture. In this matter the grower will also need to select his subjects according to the aspect of the window; a Fern, for instance, will thrive admirably in a north aspect, where a Tropæolum would give but little satisfaction, and *vice versa*. The central object in the arrangement should be a foliated plant of some kind distinguished for its graceful habit and for its verdure. Where there is space nothing is more suitable than a Palm, the more hardy kinds of which may be kept for several years in health in a small pot without materially increasing in size. If there is not space enough for Palms then some of the many forms of Dracenas may be selected, or a Grevillea, or Acacia, or any kind of slender-stemmed, upright-growing foliated plant. This, together with one or more kinds of Ferns, and a pot or so of the fresh green Selaginella, will give plenty of verdure; and if the flowering plants be judiciously selected with respect to height, habit, and colour, and the whole arranged with an eye to general effect, the result will be very pleasing. Where there is space, more than one basket may be suspended. In the window already alluded to there were three—a Tradescantia zebrina in the centre flanked by a fine Musk specimen and Panicum variegatum. The three essential points to be arrived at are a judicious blending of colour and verdure, and a tasteful disposition of the various subjects employed. I have been induced to offer these few observations as I have noticed a general tendency to crowd together a number of flowering plants, thereby creating a blaze of colour. This is all very well as far as it goes, but it does not realise the ideal of window gardening, which, in addition to skilful culture and variety of subject, should certainly include good taste in the general arrangement.

Byfleet.

JOHN CORNHILL.

ANSWERS TO CORRESPONDENTS.

Diseased Fruit.—I have sent you some Figs and leaves of a Chaumontel Pear tree. The Figs are a large crop, but many of them are curled like those sent, and during the last two or three weeks have been dropping off, having spots of decay at the eye. Has the weather caused the mischief? The leaves of my Chaumontel Pears shrivel as if burnt by frost about the time when the first shoot is about 6 in. or so long. It does not affect the growth of the trees, and the fruit grows to perfection. Other Pear trees in the same position are not affected. The Fig trees are standards, and always ripen their fruit well. I observe that the White Genoa Fig, which is much earlier than the Brown Ischia, is not affected in the same way, but has not so abundant a crop this year.—E. T. R. [We cannot give you any explanation of your curled and mildewed Figs, but we think you are right in referring their unsatisfactory condition to the abnormally wet and cold season. The common moulds now on the fruit are quite a secondary symptom. In reference to the Chaumontel Pear leaves, it is singular that they should be badly affected and the fruit, as you say, grow to perfection; we are, on this account, inclined to refer the black and discoloured leaves to the action of frost on the very young foliage. We can see no fungus, and had there been fungus at an earlier stage of growth it would, doubtless, have attacked the fruits also.—W. S.]

Arundo conspicua.—When may I clip this (as I do yearly the Pampa Grass)? My plants of it are full of semi-dead leaves, alive at the base, and so not to be pulled. I once clipped an Arundo in early spring, and it took two years to recover, but I am sure if done at the right time they would make greener and tidier plants.—J. H. W. T. [If you clip your plants at all do it in spring, just before they begin to grow. They will require the rough foliage as a protection in winter.—G. W.]

Paraffin. B.—We would not recommend you to burn this in a Vinery in which Grapes are ripening. A house 18 ft. by 12 ft. might easily be heated by means of a fire-clay pipe-flue. M. J.

Guano.—A handful for every 2 sq. yds. will be enough. If used in a liquid state put a 3-in. potful into an ordinary watering-canful of water. Such stimulants should be used weak and often rather than in the form of strong doses. J.

Cabbages.—Your plants are clubbed, the work of an insect, the larvae of which you will find in the tubercles. Clubbing generally begins in the seed-beds, and care should be taken, when planting, to reject all clubbed plants. Remove at once all that are affected and burn them. When the crop is off the ground give it a good dressing of lime and soot, and trench it deeply, letting the next crop be one not liable to club.—M.

The Edelweiss.—Can you inform me how this is cultivated? Will it do best on a rockery planted in peat?—D. S. [It will succeed in any ordinary border which is exposed and well-drained. The soil should be rather light and rich, but peat is not absolutely required. Seedling plants should be grown on in frames previous to being planted in the open border.]

Names of Plants.—J. C. N.—Lilium Martagon. W. P.—1, Liatris spicata; 2, Calceolaria amplexicaulis; 3, Spiraea Ulmaria; 4, S. sorbifolia. M. T.—Solanum crispum. P.—1, Echinacea purpurea; 2, Gymnogramma chrysophylla; 3, G. tatarica. M.—Aster Tripolium. E. C.—Campanula fragilis; the other is Linaria Cymbalaria. Lady C.—Cerinthe aspera. *Gramineæ*.—Probably Stipa pennata. F. C. 1, Echinacea purpurea; 2, Hibiscus Trionum; 3, Campanula fragilis; 4, Davallia Mooreana. S. J.—1, Asclepias syriacus; 2, probably Campanula pyramidalis. M. J. 1, Spraea palmata; others next week. G.—1, Liatris spicata; 2, Anemone rivularis; 3, Euthera fruticosa; 4, Sedum Aizoon. Mrs.

N.—1, Gentiana cruciata; 2, Sedum dasyphyllum; 3, Primula Dinyana. H. E.—1, Alstroemeria oculata; 2, Magnolia glauca.

Questions.

Granadillas (Passiflora quadrangularis). Can any one tell me what is the best way of using these as table fruit; also how long they will probably take to ripen, being now green and about as large as a hen's egg.—SOUR SOP.

Saxifraga Wallacei.—Is this Saxifrage, which is reported to be one of the finest grown, a species or variety? If a species will some one be kind enough to give its history, whence introduced, &c.? I have seen the plant, and it appears to belong to the palmate division, but in my opinion there are far handsomer Saxifrages in the same group, such as S. Rhei, Mawi, ceratophylla, geranioides, and ajugifolia.—THOS. WILLIAMS, Ormskirk.

Air-roots of Vines.—1, When air-roots appear from the eyes of Grape Vines are they signs of vigorous growth or mismanagement? 2, Are they detrimental to the full development of the fruit? 3, By what cause are they produced?—M.

Salvia patens.—I have several plants of Salvia patens in my garden this year, and though they have all grown vigorously, few blooms have come to maturity, having dropped off in the bud state. Will any of your readers kindly give me the reason for this?—W. J. T.

Walks.—Being informed that limestone chippings would set and make clean walks I tried them and find that they will not set. Is there any way of making them solid, short of asphalt?—F. D.

AMERICAN NOTES.

Squash Jam.—It is amusing to find English horticultural journals discussing the question of jam from the Vegetable Marrow, which is, in England, a poor substitute for our squashes. One writer says, that for the production of jam, "the Vegetable Marrow stands unrivalled. . . . The white-fleshed Marrow naturally produces the palest jam, but the flesh of the darker kinds, especially that of the Ohio squash (whatever that may be), not only produces the richest colour in the preserve, but also the best flavour." The same writer adds, "Much depends upon the making." A remark that applies equally to stone soup. We have known preserves to be made from Tomatoes and sugar, and have even seen people eat them, as if they liked them—but squash jam!

The Moss Pink in America.—One of our best native early-flowering plants, Phlox subulata, has rewarded an English amateur, Mr. Nelson, who has raised from seed a number of varieties as regards colour. THE GARDEN says, "It would be interesting to know if there are many varieties where the plant is common in America; if not, our American friends will have to come to us for these." Of course we do not know the extent of the variation obtained by Mr. Nelson, but we have this charming plant, in the purest white, deepest rose, with numerous intermediate shades, and all excellent.

The Ailantus.—The Tribune, in common with other American papers, has had its annual denunciation of the Ailantus as a street tree. It sets forth in language strong and truthful the fact that the unpleasant odour which the flowers possess quite unfits it for being planted near dwellings. It says, "Everybody knows it as a street tree, where it is a nuisance unmitigated save by the single fact that it does not harbour worms or insects, because no self-respecting worm can be induced to approach it." The truth of this assertion rests upon the self-respecting character of the insect, or "worm." We never knew Entomologists, who are supposed to know insects morally as well as structurally, to charge Saturnia cynthia with any want of "self-respect," yet that has such a decided preference for the Ailantus leaves over all other food, that it has received for this reason the popular name of "Ailantus Silk-worm." This insect, by the way, has become quite naturalised in parts of Brooklyn, and in some streets the trees are, or were a few years ago, a greater nuisance on account of the "worms" which they harboured than because of their odour. Besides, other insects do feed upon the Ailantus.—American Agriculturist.

Rich Soil Best for Hardy Ferns.—I am inclined to think that many of our hardy Ferns would be thankful for a more generous diet than is generally accorded them. This season a plant of the common Hart's-tongue was planted in pure night soil, with the effect of inducing an exceptionally vigorous growth. The good effects of the rich food are, however, more observable in the exceptionally deep lustrous hues of the fronds. The Scolopendrium especially would be benefited by a liberal admixture of rotten manure added to the soil when planted, and established specimens should be well mulched with it early in the spring. They would also undoubtedly be benefited by saturation of weak guano water in hot weather. Many of the smaller-growing species which require to be placed in a very free sandy compost would, I am assured, feel the benefit of a little extra nutriment when in full growth.—J. C. B.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NOTES OF THE WEEK.

The Reports on the Fruit Crop elsewhere printed in this week's issue are not very encouraging. They tell of sad disasters to Apricot trees owing to the remarkable season which we have experienced. Branch-dying has been unusually prevalent, and many trees have died outright. Peaches and Nectarines have suffered greatly from blister, and so backward are their fruits that in many places they will never ripen. Pears, though in some cases rusty and cracking, are better this year than Apples, which are generally a thin crop, and the fruit still keeps dropping from the trees. The latter, too, are in some places almost leafless. Cherries, with the exception of Morellos, cracked and rotted on the trees. Even as far north as Durham, the Morello has been better on standards than on walls, a fact worth noting, seeing that, in addition to its fruit, the growth of the tree itself is highly ornamental. Damsons are everywhere reported to be good, and in some places even heavy crops. Next to these stand Victoria and the Orleans, Plums that seldom fail. Nuts are good in many places, but Walnuts are a failure. All small fruits have been heavy crops, but flavourless; and Gooseberries have been in many places stripped of their leaves by the Gooseberry caterpillar. Of little known fruits, Helena Gloede Strawberry is spoken of as being a valuable late kind, and Stone's Apple, a local Kentish variety, is reported as being a sort that well deserves more extensive cultivation than it has hitherto received. Worcester Pearmain, a beautiful Apple, is also stated to be good. For other matters of interest to fruit growers we must refer to the reports themselves.

A New Montbretia (*M. Pottsi*).—Few more valuable additions have been made of late years to our list of hardy bulbous plants than this beautiful Montbretia. It was, we believe, introduced to the notice of cultivators by Mr. Potts, Fettes Mount, Lasswade, in compliment to whom it is named *M. Pottsi*. As there are but few Montbretias in cultivation, it may be well to mention that they are nearly allied to the Gladioli, and the plant under notice is similar in appearance to some of the small-flowered species. It grows from 2 ft. to 2½ ft. high, and bears abundance of bright green leaves, which resemble those of a Gladiolus, both in form and in their singular plaited appearance. The flowers, which are conical, have the tube slightly curved. They are about 1 in. long, and ¾ in. across the mouth, and are borne on branching stems, each branch bearing as many as three dozen closely-arranged flowers. Their colour is a bright orange-red with spots of a darker hue inside the tube, colours which when seen in profusion render the plant highly attractive either out-of-doors or in the greenhouse. It is now finely in flower at Kew, and also in Mr. Ware's nursery at Tottenham, associated with its pretty congener *M. rosea*, which is also just now producing an abundance of delicate rosy blossoms.

Torrey's Solanum (*S. Torreyanum*).—This extremely rare hardy perennial is now in flower at Kew. It is of dwarf habit, growing not more than 1 ft. high, and has rather large leaves, sinuated at the margins like those of the common Oak. The flowers are produced in loose terminal clusters, and are about 1 in. across, of a lilac-purple tint, and the central tuft of stamens is bright yellow. It succeeds well in the ordinary border, and when better known will be a capital plant for a front position in a mixed border. It is a native of North America, but its exact habitat we have been unable to ascertain.

Aster Townshendi.—This is a fine addition to Michaelmas Daisies, and one that will doubtless, when better known, gain public favour. It is nearly allied to *Aster canescens*, which is known also under the generic name of *Machæranthera*. It grows from 1 ft. to 1½ ft. high, and is robust and much branched in habit, with the root-leaves from 8 in. to 12 in. long, oblong, rounded at the tips, and sharply toothed at the margin. The upper leaves are stem-clasping and somewhat heart-shaped. The flower-heads, which terminate all the branches, are from 2 in. to 3 in. in diameter; the central florets form a bright yellow eye; the others, which are arranged in two rows, are narrow and about 1 in. long, and of a bright violet-blue. It is perfectly hardy and perennial in duration. It is a native of the Rocky Mountains of Colorado, from whence seeds of it were first sent to Kew about two years ago. It is now finely in flower in the open border in Mr. Ware's nursery at Tottenham.

The Long-flowered Primrose (*Primula longiflora*).—We saw a very distinct and handsome plant bearing this name in flower a few days ago in the Kew collection. Its leaves are lance-shaped, from 3 in. to 4 in. long, and covered with a white mealy substance on the under surface. The flower-stem is from 4 in. to 6 in. high, and is also invested with farinaceous matter, and terminated by a cluster of blossoms the tubes of which are fully 1½ in. long, of a reddish-brown colour. The petals measure ¾ in. across, and are of a rich deep purple tint, with a yellowish centre. Whether this be the true *P. longiflora* of Allioni or not we are unable to determine, as the nomenclature of Primroses is somewhat in a confused state. It is, however, a very desirable plant on account of its distinctiveness.

Odontoglossum vexillarium multiflorum.—A unique variety of this fine Orchid is now in bloom at the York Nurseries. It has ten blossoms on one spike: eleven were formed, but the first perished by an accident. The individual flowers are above the average size, and are of a fine clear "self" pink. Though vigorous as a plant, this variety is scarcely larger in bulb than other well grown specimens which have produced six and occasionally seven flowers on a spike.—*J. BACKHOUSE & SON, York*.

Sedum trifidum.—This interesting and rare Stonecrop is now finely in flower in the frames of Chiswick. It is about 6 in. high, and has slender, erect, and unbranched stems. The leaves are oblong and coarsely toothed, and are collected in a cluster on the upper part of the stem, and surround a dense cluster of deep rose-tinted blossoms, which are about ¾ in. across. It is a pretty plant for growing on rockeries, and apparently is not at all difficult to manage. It is a native of the Himalayas, where it grows plentifully on rocks and trees.

Fine Mexican Lælia.—By far the deepest coloured Lælia of any species that we have ever seen is now flowering in our collection. It is apparently a variety of *L. autumnalis*, and may well bear the name of *atro-rubens*. Dark purple-crimson most nearly describes the colour of the buds, and the expanded flowers are only a shade lighter. The large side lobes of the labellum being white, the contrast is charming. Five flowers are borne on the stem. We received it from our collector in Mexico last autumn.—*JAS. BACKHOUSE & SON*.

Hyacinthus candicans.—This beautiful bulbous plant is now very effective at the Hale Farm Nurseries, Tottenham. Its flower-stems, which rise from 3 ft. to 5 ft. high, are each terminated by a pyramid of pure white bell-like flowers, which, owing to their firm substance, last an unusually long time in beauty. It is reputed not to be hardy, but plants of it that were subjected to the effects of the past winter are now looking healthy, though not so early as those which were taken up and protected.

Fine Cherries.—Four varieties of Cherry have been sent to us by Mr. Rivers of Sawbridgeworth which well show the remarkable improvement which has lately taken place in these fruits. Two are white and two black, and of the four the white sorts are the best as regards flavour. Of the black kinds one is the late Black Bigarreau, a large handsome fruit, the other Bigarreau Noir de Schmidt, a fine kind to which a first-class certificate was awarded by the Royal Horticultural Society in 1872. Of the white kinds one named Bigarreau Gros Cœur is stated to be synonymous with Belle de Rocmont, an abundant bearer and a very useful Bigarreau; the other is Bigarreau Monstreuse de Mezel, a very large and handsome Cherry, by no means new, but not so well known as it should be. These Cherries are the produce of orchard-house trees.

Diuris lilacina.—We have received from the New Plant & Bulb Co., Colchester, flowering specimens of this interesting Australian terrestrial Orchid. It is a slender-growing kind, with stems from 1 ft. to 1½ ft. high, furnished below with several grassy leaves, and terminating in a loose raceme of pretty flowers. The segments of the flower are broad, and of a pale purple hue above, deepening into a darker shade at the base; the tip is heart-shaped, rich chocolate in colour, and surmounted by a golden crest. The two lateral sepals are prolonged into narrow, greenish tails, which give the flower a singular appearance. There are many other kinds of terrestrial Orchids in Tasmania and the temperate parts of Australia which far excel in beauty those from corresponding latitudes of the northern hemisphere, and which would well repay introducing, as they would undoubtedly soon become popular.

Vase Decoration at Kew.—The numerous vases dotted here and there amongst the flower beds in front of the Palm house at Kew afford ample illustration as regards what one should avoid in selecting and arranging plants for furnishing vases. Those employed at Kew are, for the most part, so ill-adapted for the purpose that even in favourable seasons the effect produced would have been but indifferent. The proper use of vases in garden adornment is here apparently lost sight of. Instead of filling them with such plants as have long trailing stems that would hang gracefully over the rims,

and allowing the centre to be occupied by bold plants of an elegant character, such rigid-looking subjects as *Agave americana* are made free use of, and some are even furnished with half-starved *Gasterias* surrounded by small plants of *Echeveria glauca* arranged in a dense, cushion-like manner. The huge vase which terminates the main walk, one of the noblest of garden promenades, is conspicuous only for the heap of paltry rubbish with which it is filled. The inevitable American *Agave*, which occupies the centre, is almost smothered by a few common *Petunias* and similar plants, which would not be tolerated even in a third-rate villa garden. Considering the unequalled resources at Kew, the flower vases ought to constitute the leading feature in the flower garden, and a walk through the adjoining houses would suggest a host of beautiful plants with which to fill them. For instance, what could be more suitable for such purposes than the elegant hardier kinds of *Cordylina*, *Dracena*, *Dasyliirion*, *Yucca*, *Fourcroya*, *Palms*, *Canna*, *Astelia*, as well as *Puya* and other *Bromeliads*, the *Pandanoid Eryngiums*, *Doryanthes excelsa*, and many other beautiful subjects which would thrive admirably during half the year? Plants of a gracefully drooping habit for embellishing the outside of the vases are equally numerous, and would be as easily managed as those now used.

Spikenard of the Ancients.—Amongst the many interesting plants now in flower on the rockery at Mr. Ware's nursery at Tottenham, is a mass of this *Valerianaceous* plant imported from Nepal. It is identical with that named at Kew as *Nardostachys Jatamansi*, the root and young stems of which, before the leaves unfold, are said to have constituted the Spikenard of the ancients. It is a perennial herb with lance-shaped root leaves. The flower-stems are from 3 in. to 6 in. long, terminated by a cluster of small and not very attractive violet-coloured blossoms. The upper parts of the roots are furnished with a fibrous covering, the remains of the past leaves. The perfume of the bruised roots is considered agreeable by some, whilst to others it is decidedly unpleasant. It is a highly interesting plant, and one which is quite amenable to culture in the ordinary border or rockery.

The Large Vinery at Chiswick.—This spacious structure is now one of the most interesting features in the Royal Horticultural Society's garden. It is one of the largest houses of the kind devoted entirely to Grape culture, being 180 ft. long and 28 ft. wide, and it has a curvilinear span roof of a proportionate height. Now that the Vines are heavily laden with an abundant crop of Grapes, which already show signs of ripening, the effect of the thousands of bunches is very striking. A large and varied selection of varieties is grown, and it is interesting to observe how the majority of them thrive in one house and under the one mode of treatment.

Transplanting Old Rose Trees.—During last winter, and even late in the spring, we transplanted most of our Roses, principally dwarfs, but some standards, and amongst them many that were old and apparently worn out; some, in fact, were put in more for experiment than with any hope of good results. Our soil is a stiff loam, and we gave it a thorough dressing of rich farmyard manure, trenching the ground first, and then forking the manure into it lightly before planting. Many of the dwarfs had not a single fibrous root, and, as we separated them with a sharp spade, they were more like cuttings than rooted plants; so we inserted deeper than they were planted before, in order that they might make fresh roots from the collar of the stem. Owing to the lateness of the season, and their having to make fresh roots, they were late in starting; but they have all produced some very fine high-coloured blooms, and, favoured by the dripping season, have kept very clean. Being now divested of their first crop, they are showing abundance of buds for autumn blooming, and sending up such shoots from the base as to indicate the certainty of plenty of fine bloom next year. I would therefore recommend any one having Roses in an unsatisfactory condition to transplant them in the autumn before the heat of the ground declines too much, as I feel assured that they will be well satisfied with the result. We grow Roses principally for indoor decoration, and find dwarf plants preferable to standards. In pruning we cut a good portion of the old wood, and leave the strongest young growths, which, when pegged down, flower their entire length.—J. GROOM.

The Weather and Bedding Plants.—As a proof of the cold temperature that has prevailed this summer, *Coleus Verschaffelti*, bedded out here in June, has almost entirely disappeared, having literally "melted away."—J. H. W. T., *Co. Carlou.*

The Time of Roses.—Kindly correct an error and supply an omission in the article which you have quoted from *Time* (p. 140); Mr. Cant's address is Mr. Benjamin R. Cant, Colchester; and in my list of select Roses I have omitted, I suppose on the principle *celo va sans terre*, the beautiful *Marie Baumann*.—S. REYNOLDS HOLE.

THE INDOOR GARDEN.

THE HARE'S-FOOT FERNS.

THOSE Ferns included in the genus *Davallia* that are characterised by having their creeping rhizomes clothed with chaffy or silky scales are popularly known as the "Hare's-foot Ferns," on account of the resemblance which the growing points of their rhizomes bear to the divisions of the hare's foot. The section comprises twenty-one species and several varieties, which are somewhat local as regards geographical distribution. They are all confined to the Old World, predominating in Eastern Asia and Polynesia; only one species is indigenous to Europe, and one to New South Wales. Most of the dwarfier species are epiphytal in habit, and those that are terrestrial are found in situations where their rhizomes are placed beyond the reach of stagnant moisture; they are usually found growing on the dry mounds formed by the enlarged bases of forest trees.

Hare's-foot Ferns are all easily cultivated, and under suitable conditions soon make good specimens. The readiest means of propagation is dividing the rhizomes, as their spores seldom germinate. They require good drainage, and to be grown in a mixture of turfy peat and sand. Those with wide-creeping rhizomes make fine objects when grown upon domes of peat, and they also answer well for covering walls and Tree Fern stems, and for furnishing baskets. The larger-growing species, which have short-creeping rhizomes, do best in broad, shallow pans, with the soil elevated in the centre, so as to place the rhizomes upon a well-drained surface. In order to form a dome of peat to be covered by some of the scandent species, a pan about 20 in. wide and 9 in. deep is necessary. Let one-third of its depth consist of drainage, and let the remainder be filled to the surface with turves of peat packed as tightly as possible; upon this pile more turves up to the height required. Then drive a few short stakes through the turves into the firm foundation within the pan. The outside can then be trimmed into shape. Upon the surface of this plant a sufficient number of rooted pieces to fairly cover it, and keep the young growths pegged in. The dense matrix which will be afterwards formed by the roots sent down from the increasing rhizomes will assist in holding the dome together, and will keep it in good condition for several years. In order to cover walls and rough pillars, it is only necessary to plant several well-rooted pieces at their bases and to keep them moist by occasional syringing. Tree-Fern stems may be covered in a little time by fixing plants on them at different heights, and by covering the rooted portions of the plants with moist *Sphagnum* until they are established. All the species of this section are interesting, but, as the majority of them closely resemble each other, the following are selected on account of their being individually distinct and worthy of special notice.

D. divaricata.—This is also known as *D. polyantha*. It has a stout, short, creeping rhizome clothed with brown shaggy scales. The fronds grow from 3 ft. to 5 ft. in length, and droop very gracefully; they are tri-pinnate and have from six to eight pairs of lateral pinnae and a terminal one, which is much the largest. When first produced the fronds have a rosy tint changing to a reddish-brown colour, which is retained by them until they wither. It is a native of the Malayan Peninsula and Java, and requires a stove temperature and plenty of light.

D. elegans is a more erect-growing plant than the foregoing, and has considerably more substance in the fronds. The rhizomes are covered with linear brown scales, and the stripes, which are chocolate coloured, are highly polished, a circumstance which makes a fine contrast with the olive-green of the foliage. The fronds are triangular in outline, and attain the height of from 2 ft. to 3 ft. The pinnae, which are very glossy, are cut into finely-divided, oblong, toothed segments, and slightly overlap each other. *D. elata*, one of

the varieties of this species, is more coriaceous than the type, and is a much taller-growing plant, with more distant pinnae, and its foliage retains its freshness for two or three weeks after being cut. Both species and variety are common throughout Polynesia and Tropical Africa, and they require the same treatment as *D. divaricata*.

D. solida.—This is the most luxuriant of the series. The fronds are of a fresh green colour, and are copiously produced from a wide creeping rhizome, which is sparingly clothed with dark brown scales. They are tripinnatifid, and are cut into deep wavy lobes, giving the plant the appearance of a large Killarney Fern. It is a native of the Malayan Peninsula and Polynesia, and requires a stove temperature.

D. pallida.—The well-known Fern cultivated under the provisional name of *D. Mooreana* was named by Mettinius *D. pallida*, previous to its introduction to our gardens; therefore the oldest name should have the preference. It is readily distinguished from all the others by its yellowish green colour and its round segments. It closely resembles in habit *Leucostegia immersa*, which latter is often sold as a substitute for it. It prefers soil containing a good proportion of loam, and requires more water than most *Davallias*. It should have an abundance of light, and it makes an attractive basket plant. It is a native of Aneiteum.

D. canariensis.—This is commonly known as the true Hare's-foot Fern. It has stouter rhizomes than those of any of the genus, and they are covered with close-pressed acuminate scales. The fronds are deltoid, and are cut into numerous linear segments; they are also deciduous, sometimes shedding them twice in the year. In the south of Spain it is met with commonly growing on the trunks of the Cork Oak, insinuating its rhizomes among the rugged fissures of the outer bark, and apparently drawing its nourishment from the humus formed by the decay of leaves and mosses. It annually requires a season of rest, and should be kept moderately dry from the time its old fronds begin to fade until the young ones appear. It requires plenty of air and light, and being a native of Spain and the Canaries, it should be treated as a temperate house Fern. It thrives well in dwelling rooms.

D. fijiensis.—This comes very near in character to the preceding, but it is far more beautiful; the rhizomes are smaller and more regular, and produce a greater abundance of fronds, which are evergreen, and much more finely divided. It grows very freely, and is without doubt one of the most elegant Ferns in cultivation. It is at present very rare in collections, though it is one of the commonest Ferns of the Fijis.

D. bullata.—Although this is an old inhabitant of our stoves, it is still a great favourite. It grows rapidly, and supplies an abundance of fronds for cutting; the rhizome is wide-creeping, and clothed with spreading scales; the fronds, which are triangular, are from 6 in. to 12 in. in length, and taper off into long points; the pinnae are glossy and slightly recurved. It is a native of Japan, Hindostan, and Java, and is suitable for an intermediate house.

D. dissecta.—In general appearance this resembles *D. bullata*, but it is more robust, and grows even more rapidly. The scales on the rhizome are of a darker colour, and the fronds are larger and of a firmer texture. It is a native of Japan.

D. pentaphylla.—Were it not for the marginal sori of this Fern, there would be some difficulty in recognising it as a *Davallia*, so much does it differ from that genus in character. The rhizome is wide-creeping, and covered with spreading, bristly scales; the fronds are simply pinnate, with from two to three pairs of lateral pinnae, and a terminal one; in texture the pinnae are coriaceous, and are of a very dark green. It is a native of Polynesia.—C. M.

Anguloa eburnea.—I see that Mr. Baines, writing upon the treatment of this genus, enumerates amongst others *A. eburnea*; now I have frequently heard this plant spoken of and seen it described, but have never met with it. Can Mr. Baines or any of your readers enlighten me? What size are the flowers? what shape and what colour? I know it should be ivory-white, but that is no description. I am doubtful if the true plant is really in the country.—Z.

A Good Flue.—Mr. Epps has lately called our attention to the merits of a well-made flue. It keeps out frost and does not excite Heaths and hard-wooded plants when growth is not wanted. A good flue and good draught gives a dry, sweet heat, drives fungus away, and is better for some classes of plants than any hot-water apparatus. It is also more simple in action than most of these, and not so apt to get out of repair. We believe many amateurs with one or two houses would find a well-made flue to be by far the best mode of heating.

TREES, SHRUBS, AND WOODLANDS.

The Beech as a Shelter Tree.—Writers on forest trees have sometimes dwelt upon the immunity of the Beech from destruction by lightning, and on this account it has been recommended for planting as a shelter for cattle either singly or in groups in exposed situations. That this idea was for a long time prevalent we have abundant evidence from both ancient and modern writers. Never having myself seen an instance of its being struck, I was in 1875 strongly recommending it to a gentleman in the west of England, who was planting a park on high ground, and in which I had often seen both the Oak and the Ash shattered, when he informed me that he had just returned from Ireland, where, during his tour, he had found the public road stopped, and the further progress of his carriage barred, by a Beech tree which had just been struck down. Perhaps some contributors of *THE GARDEN*, who have witnessed similar occurrences, will give your readers the benefit of their observations. If, as a rule, the Beech is really entitled to the exemption claimed for it, this must be owing either to the conformation of its branches or its perfect non-conducting powers. Blencarn says:—"In hot countries, where thunderstorms are particularly alarming, the Beech has never been known to be struck by lightning."—A. J. B.

The Conservation of Woods.—The following from Evelyn may be interesting to our readers: "It were to be wished that our tender and improvable woods should not admit of cattle, by any means, till they were quite grown out of reach; the statutes which connive at it in favour of custom, and for the satisfying of a few clamorous and rude commoners, being too indulgent, since it is very evident that less than a fourteen or fifteen years' enclosure is in most places too soon, and our most material trees would be of infinite more worth and improvement were the standards suffered to grow to timber, and not so frequently cut at the next felling of the wood, as the general custom is. I am advised by such as are every way judicious and of long experience in those parts (the forests of Dean and Sherwood), that to enclose would be an excellent way, but it is to be considered that the people, viz., foresters and borderers, are not generally so civil and reasonable as might be wished; and therefore to design a solid improvement in such places His Majesty must assert his power with a firm and high resolution to reduce these men to their due obedience, and to a necessity of submitting to their own and the public utility."

Present Appearance of Woodlands.—The somewhat dull uniformity of colour which generally prevails in the woodlands throughout the latter part of June and the beginning of July becomes broken after the middle of the latter month by the midsummer shoot, which has during the present summer (still by courtesy so-called) not made its appearance until August, and very sparingly even now. Here and there a few branches on the Oaks and Elms have assumed a brighter green colour, and the bunches of Ash-keys, the cylindrical catkins of the Hornbeam, and the elongated catkins which form the embryo-spiked clusters of the Spanish Chestnut are on all sides conspicuous. The latter tree is now particularly striking as seen in the distance standing out in bold relief against dark masses of Oak, Elm, and Beech. The spreading form, though somewhat meagre in outline, of the Plane is also distinctly traceable against the dense and dark heads of Sycamores behind. Even the gigantic Walnut, which in winter was admired for the endless ramifications of its branches, and in the late spring for the warm russet or brown hue of its young leaves, is now one mass of the richest green, which appears almost unmoved by the high wind which is tossing the branches of the Beech trees, and wildly rocking the Silver Firs and towering Poplars behind it. Every season hath its peculiar beauties; and in the woodlands, where up to nearly the present time the colours of the foliage have been converging upon the almost universal dark green, they will soon rapidly diverge, until they melt away into the gorgeous hues of autumn.—A. J. B.

OBITUARY.

We have to record the death of of Mr. John Weeks, an event which took place on the 13th inst., at Temple Dinsley, Hitchin, where he has resided since his retirement from business some ten years ago. Mr. Weeks was one of the oldest and best known of our horticultural builders, and one who in his time has effected many important improvements both in warming and constructing glasshouses. As the name of Weeks in connection with heating and hothouse building is world-wide, we think it well to mention that the business now carried on under that name will not be in any way affected by his death, inasmuch as he has ceased to take any active part in it since the year 1869.

THE FLOWER GARDEN.

New Zealand Flax in Flower.—It may interest some of your readers to know that *Phormium tenax* is flowering in South Devon this summer. Two plants, fourteen years old, which have never previously thrown up flower-spikes, and one of which was moved this spring, are now blossoming here, and last week I saw several in bloom at Dawlish. I am of opinion that this unusual circumstance must be attributed to the excessive rainfall of the last sixteen months, as it cannot be owing to abnormally high temperature during the last or the present summer.—A. PARRY ROGERS, *Stoke Fleming, South Devon.*

Candytufts in Wet Seasons.—The great value of Candytufts as mixed border plants I experienced for the first time this year. The seed was sown last March in patches about 4 ft. apart, along the side of a gravel walk, and its produce is now the chief ornament of my garden. I had intended to make some more sowings about the end of May between the patches, to do duty in their stead for the latter half of the summer season, and to remove the first-sown when their beauty began to fade. But this has proved to be needless; their beauty has been prolonged, and they promise to occupy the ground advantageously till the season ends. They are of all shades of colour, from pure white to deep purple; but when seen at a distance their prevailing tone is that of a rich lilac-pink. Of course it is impossible to tell at the commencement of the year what sort of weather will prevail in the coming summer, but it would appear that in a light and rather rich soil this annual is able to set at defiance a long continuance of rain and cold.—B. S.

Plants not Named at Kew.—In a botanical garden one naturally expects to find all the plants cultivated therein correctly and distinctly labelled. I was therefore much surprised to observe that what I and probably many other visitors to Kew would consider one of the most interesting collections of plants had no names affixed to them. I allude to the beds of Succulents in the vicinity of the large Palm-house. These beds are very interesting, inasmuch as they contain the greater portion of the Succulents now so popular and so extensively used for summer bedding, and enable visitors at a glance to compare their different habits of growth, thus enabling them to form an accurate idea of their capabilities for various purposes. The value of the arrangement is, however, completely marred by the absence of labels, which fact is the more unaccountable as common bedding *Pelargoniums*, *Verbenas*, &c., are all distinctly named. I may be informed that duplicates of these Succulents exist in the glass structures with names attached to them; but Kew is a large place, and, owing to the late hour at which the gardens are opened, there is really not time to thoroughly inspect every part of them in a day. The idea of thus grouping these Succulents in the open air is a good one, but omitting to name them must be considered a serious mistake, and has undoubtedly caused considerable disappointment.—J. CORNHILL, *Byfleet.*

The Day Lilies.—Amongst the various plants flowering just now in the herbaceous borders the *Hemerocallis* are specially noteworthy. They seem to luxuriate in the moisture which we are having, developing their magnificent and ample foliage in the greatest perfection, and upholding noble spikes of inflorescence which are very attractive. The double-flowered variegated *H. Kwanso* is one of the most effective: its ample foliage, distinctly striped with white, almost rivals that of the lovely *Pandanus Veitchii*. This is unquestionably a noble border plant, and one which should have an abundance of space in which to fully develop its proportions. The variegated variety of *H. fulva* is also a good border plant, somewhat less vigorous than *Kwanso*. These lifted and grown in pots are admirably adapted for decorative purposes. The double-blossomed variety of *H. disticha* is a grand plant; it is vigorous in growth, producing ample foliage, and strong conspicuous red and yellow blotched flowers. These are all plants of the easiest possible culture, thriving in almost any soil or situation.—GEO. WESTLAND.

Foxgloves amongst Rhododendrons.—Foxgloves are mentioned (p. 106) as being effective when growing amongst Rhododendrons at Kew. They are employed in the same manner and with very pleasing results at St. George's Hill, Byfleet. A sloping bank of dwarf Rhododendrons, amongst which both Foxgloves and Oriental Poppies grow with great luxuriance, formed this season one of the most admired and attractive features in these gardens. Rhododendrons, gorgeous though they may be when in flower, are apt when out of bloom to present a somewhat formal appearance. Anything, therefore, which may be utilised to break the rather monotonous aspect which they present during the summer months should be welcomed. Lilies are, as is well known, amongst the best of subjects for this purpose, but it does not lie in the power of every one to acquire a sufficient quantity of them to produce an immediate effect.

Foxgloves, on the contrary, owing to the facility with which they may be raised from seed, might be extensively planted wherever there is accommodation for them. The idea has frequently occurred to me that where Rhododendrons are planted in large masses, it would be better to restrict their development, and instead of allowing them to form a dense even surface of foliage, to so arrange as to leave semi-open spaces in which to naturalise some of the robust-growing species of flowering plants which naturally succeed well in such situations.—JOHN CORNHILL.

Large White Achilleas.—There are many of the ranker-growing kinds in the vast family of Composites which, though they are unsuitable for the ordinary flower border, are capital plants for shrubberies and the rougher parts of the garden. Amongst those best adapted for such purposes are the large-growing kinds of *Achillea*, some of which are represented in the annexed engraving. When planted in wide masses in shrubberies, or under the shade of trees, the effect of the large white flat heads of flowers is very striking, and it is enhanced by the partial darkness and green of the surrounding woods. They will thrive in any kind of soil, and produce seed freely in favourable seasons. The kinds best suited for the purpose are *A. magna*, *dentifera*, *tanacetifolia*, *Parnassica*, and *impatiens*, all growing from 3 ft. to 5 ft. high, and having white flowers and finely-divided feather-like foliage.—W. G.

Wild Plants in Rock Gardens.—To show to your readers that beautiful objects may be enjoyed on rockeries without seeking for them amongst orthodox collections or rarities, I would mention the wild Thyme, which I should never have thought of planting, and, in fact, did not plant; but two years ago, securing a quantity of large stones from the Ingleton hills for rockery purposes, one of them had a plant of it in a small crevice; the stone was placed that side uppermost, and, without any more attention whatever, that stone is now covered with a fine patch of Thyme nearly 2 ft. through, looking as natural as it could have done on its native hill.—J. WOOD, *Woodville, Kirkstall.*

The Blue Daisy.—Having tried *Bellis cœrulescens* from seed in several kinds of soil and positions, I have come to the conclusion that it cannot be called blue. In comparatively dry places it has, however, both a pretty habit and tint of pale transparent mauve, making it a pleasing plant, if a disappointing one.—J. WOOD, *Woodville, Kirkstall.*

FERN COLLECTING IN SCILLY.

It is well known to those who have visited these beautiful islands, that their principal botanical features are *Mesembryanthemums* or Ice plants, which grow here with a luxuriance nowhere to be met with in Britain; but it is perhaps not so well known that good collections of Ferns may be made by those who are enthusiastic enough to seek them among the rocks and caverns on the seashore, and in the crannies and crevices of the numerous old walls with which the islands are intersected. Probably nowhere else in Europe can finer plants of the beautiful dark green *Asplenium marinum* be obtained than in the fissures of the rocks at Deep Point, a headland of St. Mary's; but most of these grand specimens grow in altogether inaccessible places, and are far beyond the reach of the most daring climber. I was, however, able to obtain and bring home with me many fine plants of this species. I have placed them in a greenhouse where they are growing well, and have already thrown out numerous young fronds. It is almost impossible to cultivate this species in the open air at any distance from the sea, but in a stove with a temperature of about 80°, and a moist atmosphere, it thrives admirably, and produces a constant succession of seedlings.

Although the *Asplenium marinum*, or Sea Spleenwort, is the most beautiful of the Scilly Ferns, there are many other comparatively rare varieties that may also be obtained. I found among others *Asplenium Adiantum-nigrum*, somewhat rare, and having very small fronds, *Asplenium Trichomanes* (also rare), *A. Filix-femina*, *Lastrea Filix-mas*, *L. dilatata*, and *Polypodium vulgare*. *Osmunda regalis* is also to be found on a piece of marshy ground near Old Town, St. Mary's, but I did not look for it, as my botanical collection had already filled two large hampers.

During my sojourn on the islands I obtained cuttings of many varieties of *Mesembryanthemums* which I found growing in a wild state, and covering the numerous stone walls. The finest specimens of these plants are to be seen in the old graveyard at St. Mary's. My cuttings, I am happy to say, have all struck, and are growing vigorously in a cool greenhouse. The mildness of the climate at Scilly may be judged from the fact that many kinds of plants which with us require shelter and heat during the winter months, there grow luxuriantly in the open air all the year round. I saw a *Pelargonium* which covered the entire front of a small cottage, and which had

developed a stem—or I should say trunk—no less than 6 in. in circumference. A peculiarity of the islands is that they are almost destitute of timber, the salt-laden winds proving very destructive to all foliage in exposed situations. The late Mr. Augustus Smith tried the experiment of importing from New Zealand to his residence at Tresco Abbey several plants, such as Aloes, Yuccas, Dracenas, Tree Ferns, Castor-oil Plants, and many others, and has been remarkably successful in their cultivation. These grow at Tresco to an enormous size, and, apart from the natural beauty of the place, the gardens of Tresco Abbey are well worth a visit.

The Cottage, South Norwood Park.

ANNIE TYRRELL.

SEED FARMING IN ESSEX.

ONE of the most beautiful of floral displays to be seen in the open air in this country is a field of garden annuals when in full flower. The small patches usually seen in gardens fail to convey an adequate idea of their gorgeousness as seen growing in large masses. Notwithstanding the exceptionally unfavourable season, the majority of the annuals on Messrs. Carter's seed farms are looking remarkably well, and every precaution is taken to ensure the purity of each particular stock by frequent recourse to weeding out any that do not conform to their descriptions. Godetias occupy large breadths in various parts of the grounds; *G. Whitneyi*, though beautiful, is quite surpassed by its variety *flammea*, which is of a rich velvety-crimson hue; *Lady Almarle* has flowers of a shade lighter than the preceding, but it is quite as desirable. Several acres are entirely devoted to Sweet Peas, to which special attention has been paid at this place with regard to raising new and desirable varieties. Amongst the most conspicuous kinds are *Invincible*, in black, scarlet, and striped colours; also *Painted Lady* and *Butterfly*, with its pretty white and blue-edged blossoms. A large breadth of the handsome *Bartonia aurea*, a Chilean annual of the *Loasa* family, is this year a complete failure, owing to the continued wet and sunless weather that was experienced early in the summer. Various kinds

of Candytufts, too, have suffered from the same cause. Though these are now almost over, there is still enough left of the new carmine variety to enable us to say that it is a fine addition to the genus in point of size and colour, and admirably adapted for growing in pots. In the dwarf or Tom Thumb type of *Tropæolum*, one of the specialities here, many new varieties are constantly being raised and distributed. About two acres are devoted to these alone, and the effect which they produce when in full beauty is gorgeous in the extreme. The brilliant hues of such kinds as *Fireball*, and also the dwarf little *King of Tom Thumbs*, which grows but from 6 in. to 9 in. high, are toned down, as it were, by the more subdued tints of *Pearl*. The *Bride*, *Spotted King*, &c., have yellow flowers of various shades; one of the darkest forms is *King Theodore*, which has flowers of a blackish-maroon colour.

There are few prettier plants of a bold aspect than the many kinds of Larkspurs, especially the stock-flowered strains with rosette-like blossoms in all shades of colour, from pure white to deep purple and red. Of these there is a great quantity grown, and being arranged so that the colours contrast agreeably, they have a most striking effect. *Eschscholtzias* are in great demand, and comprise several varieties, including the double-flowered kinds. Besides the ordinary *E. californica* and *E. crocea*, there are the beautiful *E. Mandarin* (figured in *THE GARDEN*, pl. CIV.), *E. rosea*, and a pure white form. The clear red tints on the outside of the petals in *E. Mandarin* have a pretty appearance in the evening when the flowers begin to close. A new variety has also been raised here in which both the inside and outside of the petals are red in colour. French Marigolds receive particular attention, and one strain especially is as near perfection as need be, if a sturdy dwarf habit, a free-flowering propensity, and symmetrical and beautiful flowers are held

as a criterion. There is considerable variation in the shades of colour in this strain, and especially as regards the lacing of the petals, though all are first rate, and few better annuals can be grown. The *Clarkias* constitute another highly desirable set of annuals, and our attention was directed to several new forms amongst them raised lately. One of the most beautiful is a new variety of *C. integrifolia*, the petals of which are pure white with a star-like centre of a rich violet-purple. The older varieties, however, still hold their own against new comers. *C. limbata* and the various other kinds of the entire-petalled type are very gay, not omitting the little *Tom Thumb* variety, which is a capital sort for growing in pots. The *Indian Pinks* are represented largely here, and comprise some of the finest strains which we have seen both as regards variety of size and colours. The two varieties—*Crimson Belle*, with rich crimson blossoms, and *Eastern Queen*, with flowers of a rosy-lilac colour, deserve special mention. One of the most effective plots was devoted to the summer-flowering *Chrysanthemums* (*C. tricolor*), of which there are many varieties. Though the double-flowered sorts are very pretty, they do not surpass the original kinds. The best of the former are *Dunnett's Snow White* and a golden-flowered kind. The pretty little *Calabrian Soapwort* (*Saponaria calabrica*) is largely grown here, and comprises several varieties varying in colour from pure white to a deep rose. A host of other annuals too numerous to mention are extensively represented, many of which, such as *Nemophilas* and *Silene pendula*, were out of flower, whilst others, such as *Salpiglossis*, *Asters*, &c., are yet in tolerably good condition.

Amongst perennial plants a plot of Carter's *Auricula-eyed Sweet William* is particularly noteworthy, as it is the finest strain with which we have yet met. The plants are comparatively dwarf and very robust, and produce large heads of bloom, each of which measures 1 in. across, and is perfectly round, with smooth edges, while the colours are as well defined as those of a good *Auricula*. The pretty *Ecce-mocarpus scaber* forms an attractive ornament when grown in the open ground and allowed to climb amongst tree branches, as here practised. In this way it flowers abundantly, and is very useful for cutting purposes. A plot is devoted to testing seedlings of novel

ties, great numbers of which are raised annually. Here may be seen the latest additions to the already bulky list of annuals and other popular plants.

Amongst the choicer sorts of vegetables Peas are the most interesting, and to these several hundred acres are devoted. Amongst new sorts, the best, we think, is one called *Stratagem*, which grows from 1½ ft. to 2 ft. high, and is extremely productive. It is a wrinkled Marrow with unusually large and well-filled pods. For market purposes it will stand unequalled on account of its dwarf habit and productiveness. Another called *Strength* is a handsome Pea, also dwarf in growth, and equally productive. Such well-known sorts as *Little Wonder*, *Challenger*, and many other kinds need no comment, except that here in their birthplace they grow very vigorously, and are now heavily laden with pods. The two varieties, *Culverwell's Telegraph* and *Carter's Telephone*, in reference to which there has been some discussion of late, may here be seen growing side by side, and it needs no expert to distinguish their peculiarities. They are both first-rate Peas, though, in accordance with the decision of the Fruit Committee at the last meeting at South Kensington, the preference must be given to *Telephone*. With regard to other vegetables, equal attention is paid to keeping the stock of each particular strain true by frequent recourse to what is termed "rogueing" or removing spurious kinds—no easy matter where vegetables grown for seed cover so large an amount of ground as they do here.

W. G.



Large White Achilleas spread into wide masses under shade of trees in shrubbery.

Ivy-clad Walls.—Visitors to Kew Gardens may have remarked near to the main entrance an Ivy-covered wall. The happy and rather novel idea has occurred to the owner of draping the outside portion of this boundary wall. Would that this example

could be more generally followed. Naked brickwork is always uninteresting, and more or less unsightly; could its bare surface be clad with verdure, the general appearance of many buildings in gardens would be much improved. What has been done for the wall already mentioned might be effected elsewhere, and it would probably be found that other plants besides Ivy (although it must be confessed that it would be difficult to find so suitable a subject) might be utilised for the purpose. In some places circumstances might offer insuperable difficulties to planting on the outside, but there are certainly miles of wall which might at a slight expense have their bare, unsightly surface clothed with verdure.—J. CORNHILL.

The Van Houtte Memorial.—The interesting ceremony of unveiling the Van Houtte memorial took place at Ghent last Sunday in presence of a large number of his admirers. At three o'clock a procession, numbering several thousands, and composed of delegates from all the Belgian and many foreign horticultural societies, as well as the *élite* of Ghent, started from the station for Gendbrugge, where the statue is situated, close to M. Van Houtte's world-renowned nursery. The procession was accompanied by several bands of music, and at short intervals were magnificent wreaths sent by various nurserymen. Many of these were very large, being as much as 7 ft. long and 4 ft. wide—one, contributed by the *employés* of the late M. Van Houtte, and composed of about 800 blooms of the lovely Rose Louis Van Houtte, edged with leaves of *Rosa rugosa*, being especially striking. The statue was unveiled by the Burgomaster of Ghent, and speeches were delivered by the Governor of Hainault, Professor Morren, and other eminent men. The monument, which is the work of the rising young Belgian sculptor De Vigne, represents Flora placing a wreath on the head of M. Van Houtte, and is spoken of as a fine work of art. The proceedings, both at the ceremony and at the banquet held in the evening, were characterised by the greatest enthusiasm.

THE KITCHEN GARDEN.

ASPARAGUS CULTURE.

By M. GODEFROY-LEBŒUF.

M. GODEFROY-LEBŒUF, a well-known horticulturist of Argenteuil, has published a book on Asparagus, Strawberries, Figs, and small fruits, from which we translate the main portion of the article on Asparagus, that being likely to interest our readers at a time when special attention is being paid to the culture of this vegetable.

Varieties of Asparagus.—Originally there was but one form of edible Asparagus, the wild Asparagus (*Asparagus officinalis*), from which have sprung the common garden Asparagus and the Giant Asparagus. The former gave rise to the Early Pink Asparagus grown in Holland, at Ulm, and at Argenteuil, and the Late Pink Asparagus grown at the same places. Culture and selection have so great an influence on vegetables that they modify not only their constitution, but their mode of growth and their flavour. It is by dint of constant observation, combined with great care and patience, that the Asparagus growers at Argenteuil have succeeded in improving this vegetable by creating, as it were, two varieties, the Early and the Late, and that they have rendered those varieties permanent, so that they may always be depended on as being superior to their common parent both in size and quality. Asparagus is grown throughout the whole of France with almost equal care. How is it, then, that there are only certain privileged localities which produce it in such perfection in every way that even after twenty years' growth the same plants yield abundant crops? This apparent anomaly simply arises from certain growers having adopted an intelligent and rational method of cultivation. By this means the Argenteuil Asparagus has reached such a state of perfection that it is impossible to mistake it for the old-fashioned varieties. Compared with them it gives crops of triple weight and size, while the Early variety comes to perfection ten days earlier than any other known kind. The appreciation bestowed on this variety everywhere is consequently fully accounted for.

EARLY AND LATE ARGENTEUIL AND DUTCH ASPARAGUS.

Late Asparagus.—The Late Asparagus as grown at Argenteuil is often flat in form; the eyes are prominent and arranged in a spiral, and the point is short and stumpy. When well grown the heads are from $3\frac{1}{4}$ in. to $7\frac{1}{2}$ in. in circumference at a distance of $8\frac{3}{4}$ in. from the tip. Fig. 1 shows one of these heads drawn from nature. There were others grown at the same time which were much larger, but this one was chosen on account of its representing the purest type of this variety. The entire stem of the Late Asparagus when full grown measures from 5 ft. 10 in. to 7 ft. 8 in. in height. This variety is very vigorous, will thrive in almost any kind of soil, and lasts for many years. The crown of the root rises but slowly out of the ground; the Late variety therefore is better adapted for a shallow soil than the Early variety. It produces less than its congener during the first years of its growth; but, on the other hand, it lasts much longer. We have seen Asparagus beds twenty-seven years old which still yielded abundant crops, the heads measuring from $2\frac{1}{2}$ in. to $3\frac{1}{4}$ in. in circumference.

Early Asparagus.—The Early Argenteuil Asparagus (fig. 2) is generally round, but sometimes slightly flattened.



Fig. 1.—Late Asparagus.

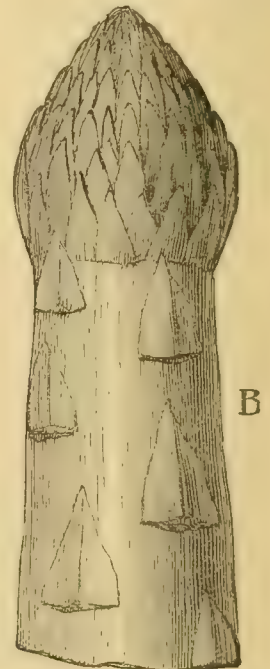


Fig. 2.—Early Asparagus.

The eyes are not so prominent as in the Late variety, and they form less regular spirals. The point is conical, often swollen in the middle, and longer. The heads measure from $2\frac{3}{4}$ in. to $5\frac{1}{2}$ in. in circumference at $8\frac{3}{4}$ in. from the tip. Fig. 2 shows a head of Early Asparagus of the average size drawn from nature by M. Godefroy-Lebœuf. There were many heads grown at the same time which were much larger, but a medium-sized head was chosen as being a type of the variety which is most in favour in the Paris market. The Early Asparagus attains a much greater development than the Late, often reaching to the height of 10 ft. It is very vigorous, and is not particular as to the richness of the soil; nevertheless it requires a depth of at least 10 in., for the crown of the root rises every year about $\frac{1}{2}$ in. It begins to yield at the end of the third year, and from six years old it gives

good crops for from fourteen to fifteen years. After this time the heads are somewhat smaller, but the crop is abundant. When well cultivated it will continue yielding for from eighteen to twenty years.

Dutch Asparagus.—Dutch Asparagus (fig. 3) is nearly always round. The eyes are arranged spirally, and are narrow and prominent. The tip is sometimes conical, at others elongated, and at times swollen in the middle. The heads are from $1\frac{1}{4}$ in. to $3\frac{1}{2}$ in. in circumference, measured at $8\frac{3}{4}$ in. from the tip. Fig. 3 shows one of the finest heads of this variety, drawn from nature by M. Godefroy-Lebœuf. The general height of this Asparagus is about 5 ft. It is neither so handsome, so well-flavoured, nor so tender as the two Argenteuil varieties. It also requires a much richer and deeper soil; its cultivation in France, therefore, has been given up by the best growers. Among other defects which are laid to its account are the following: it very soon grows hard, it opens its point very rapidly, and turns green in twenty-four hours. This variety fetches but a low price in the Paris markets, where it is sold at 1 franc a bundle, while the Argenteuil variety of the same size fetches from three to four times that price. It is not a good plant for cultivating on a large scale, while for amateur growth it is unsuitable on account of its small yield and its bitter flavour. It should only, therefore, as a rule, be grown where other sorts cannot be obtained. It has been estimated that it yields only a quarter of the crop furnished by the Argenteuil sort, all other things being equal. It also needs greater care and a larger quantity of manure.

The Soil.—Asparagus may be grown, and will thrive, in almost every kind of soil; heavy and damp soils, however, must be lightened before they will yield abundant crops. The best soil for growing Asparagus is a light one, either calcareous, siliceous, or granitic. If the soil is hard and heavy, it must be made lighter during the first few years by spreading over the stools a certain quantity of sand, lime-kiln, or other ashes, coal-dust, and similar inert materials, until it has lost its property of hardening and cracking during the dry season.

Preparation of the Ground.—Generally speaking, a great deal of very useless trouble is taken in the preparation of a piece of ground intended for an Asparagus bed. Some growers dig out the whole of the soil to the depth of 3 ft. or 4 ft., filling up the void with masses of manure, which, instead of favouring the growth of the crop, are not only lost but are absolutely injurious. When the spot on which the Asparagus bed is to be formed has been decided on, it is only necessary to turn up the soil to the depth of from 10 in. to 12 in., either before or after the winter sets in. Large and small stones must be carefully removed, so as to render the soil easier to work. Asparagus requires a firm soil to root in; we must be careful, therefore, not to dig down below a greater depth than 12 in., for if the roots bury themselves at too great a depth they will feel the effects of the atmosphere in a very small degree. Their growth will be consequently retarded, the crop will be smaller, the heads thinner, and the plants shorter-lived. The soil ought to be allowed to remain fallow after digging, that is to say, nothing but the rake should be passed over it to make all smooth—thus enabling the frost to have a greater action on it than other-

wise. Whatever may be the quality of the soil in other ways, it is of the greatest importance that the ground should be cleared of stones great and small, as they not only prevent the heads from appearing above the surface, but, by lying on the tops of them, cause them to bend and become deformed. The ground should also be kept clear of weeds.

Manuring before Planting.—Except in the case of poor soil, we need not give any manure before planting. If the soil is exhausted, we should dig in—either in September, October, or November, but not later—a quantity of well-rotted manure, so that by the end of the winter, when we are about to plant, we may find the whole of it resolved into soil. As a general rule, we must never manure at the time of planting, for manure attracts insects, and insects attract moles and mice, all of which are very injurious to the young plants.

Choosing the Plants.—If we sow Couch Grass we shall certainly not reap Wheat; and if we plant a sickly-looking, weak tree we shall never produce one that is healthy and vigorous. If, therefore, we plant puny Asparagus plants we shall only obtain a wretched crop. We have often heard it said that it matters little whether the plant is strong or weak, and that as long as we cultivate properly and give plenty of manure, we must necessarily obtain firm and well-flavoured Asparagus. There is only one species of edible Asparagus, but there are almost as many sub-varieties as there are growers, for when the plant is grown from seed it infallibly varies when the seed-plants are not specially grown for the purpose. It is necessary, therefore, to choose our seed from those plants which produce the finest growths. Between the wild Asparagus and the varieties which are cultivated nowadays the difference is very great. Notwithstanding this, they are all produced from the same type. Amongst these sub-varieties there are all kinds of shades, but between the wild Asparagus and that grown in Holland and at Argenteuil there is a wonderful difference. Take a walk through the Asparagus beds of Argenteuil, St. Denis, Gennevilliers, Colombes, and Sannois, and when the time for cutting arrives, notice the shape and quality of the heads and taste their flavour, and you will soon become convinced that the different sorts cannot be mistaken for each other, neither as to earliness, quality, form, vigour, or general appearance. It is not sufficient to find out the localities which are celebrated for the best growths of Asparagus, but we must also find out whether they are grown by A or by B, and even then we may be at a loss, for in one plot B may grow a crop which leaves nothing to be desired, while the crop in the very next plot may be worthless. In using the terms variety and sub-variety we do not intend them to be understood in the strict botanical sense; they must therefore be looked upon as cultural expressions, that is to say, that these varieties are capable of returning to their original type if they are neglected or badly cultivated. Nothing, therefore, is so difficult as to procure varieties not merely of good quality, but of exceptional quality. The choice of plants is therefore a matter of great importance in growing Asparagus; so important is it, in fact, that we should reject all stools offered at a cheap rate, and always pay a fair sum for them, as long as we are sure of obtaining a good variety. What possible good can there be in exercising economy in purchasing stools which will only yield one-half or one-third of the crop obtainable from the best varieties for a few extra pence? In those localities which are most renowned for Asparagus—at Argenteuil, for instance—the growers attach the greatest importance to having good varieties, and they not only choose them from amongst their own plants, but from amongst those of their neighbours, so much so that a grower who has cultivated a number of seed-

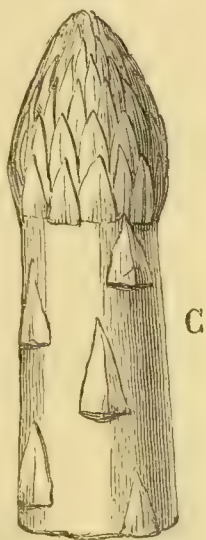


Fig. 3.—Dutch Asparagus.

bearing plants with the greatest care suddenly finds himself deprived of them just as the time comes for gathering the seed. It has also happened that the stools were destroyed by those who stole the seed, so that the proper owner of them was no longer able to procure a supply at will. This trait in the character of Asparagus growers will show how much importance they attach to the choice of good varieties. Sharp growers, consequently, who have succeeded in producing rare sub-varieties, prevent them from becoming multiplied either by breaking off the fruit-bearing shoots or by destroying the seeds, so that they should only be recognised by those in the secret. If it is a difficult matter to obtain good seed plants in places where Asparagus growing is carried on on a large scale, it will be readily understood that it is almost impossible to find them in small gardens where the cultivation of Asparagus is almost unknown. How then are we to recognise a good plant? Nothing is easier to those who have seen it grow, or more difficult for those who have only seen it as a stool at the moment of planting. In making a choice, we must be certain of the seed in the first place, and ascertain that it comes from a good variety, after which we destroy all those young plants which show any signs of departing from the type which we are desirous of growing. This is an art which can only be practised with success by those who are thoroughly acquainted with rearing Asparagus. The wisest course to pursue, therefore, when about to commence an Asparagus bed is to go to some well-known firm with a reputation to lose, and to place full confidence in it for the choice of seeds and plants. Even when we have a thoroughly good plant in cultivation we must know how to gather the seed at the proper time and in the proper manner. In addition to this all of the seed even from the best plants is not equally good. The seed, for instance, which has been gathered from a stool which has flowered side by side with a bad or medium kind, and at the same time, is worth nothing, because it has been fertilised badly. Again, the seed should be perfectly ripe, and it must be kept properly after it has been gathered. The last heads generally yield nothing but doubtful seed, which seldom reproduces the proper type. The seeds which grow at the end of the shoots also, as well as those produced by the upper and lower extremities of the stem, have the same defect. Those seeds, too, which are not sufficiently ripe or which are too small are sure to produce bad plants. Seed should be only collected from those plants which have reached the age of from seven to ten years and which carry but few seed-vessels. The seed-bearing stems also yield bad seed. By the above we can easily see that the difference between the difficulty of procuring good seed and good plants is enormous; we therefore recommend the amateur and small grower to give up all ideas of raising Asparagus from seed.

The Age and Strength of the Plants.—Two-year-old stools are still planted by some, but for a long time past practical growers have given up planting stools of more than a year old. The plant from a two-year-old stool is always a bad one, no matter what may have been the amount of care which has been bestowed on it, for the reason that it produces too many heads, which consequently lack strength and sap. General weakness is the consequence, and the crops are all puny and of poor quality. Asparagus is a plant of vigorous growth, but no plant in proper health would stand transplanting the second year without suffering from it; it would, in fact, give an abortive growth, which would never produce good heads. A plant which has come off a healthy stock is sufficiently strong for planting at a year old, and all of an older growth should be neglected. Great attention, therefore, is necessary in our choice of plants, and, as we have said before, bad goods are always dear, more especially in the case

of Asparagus. The strength or size of the stools is of little consequence if the seed has been good, so that at the end of the second year there is but little difference between them.

Form of the Ground for Planting.—If you wish to plant a plot of Asparagus distinct from the rest of the kitchen garden, you must open several trenches at about 36 in. apart, 10 in. deep, and 10 in. wide, throwing up on each side the earth taken out, so as to form a mound, as shown in fig. 4 at RRR. The line which passes beneath the letters HHH shows the level of the earth, and the upper part of the earth taken out of the trenches. The letters MM (fig. 4) show the stools in their proper position before they have been covered with a layer of earth. It will be noticed that the sides of the trenches are almost perpendicular below ground, and that above ground they form an angle with the mound at the level of the soil. This angle disappears as soon as the stool is covered over with earth, and the base of the mound is at the bottom of the trench, the sides meeting in an angle at the top. Beware of digging up the bottom of the trench, or of hoeing or raking it as recommended by many authors. The soil should be left alone, for Asparagus likes to run over the surface and not to penetrate beneath it; besides, as already stated, the roots, if they penetrate too

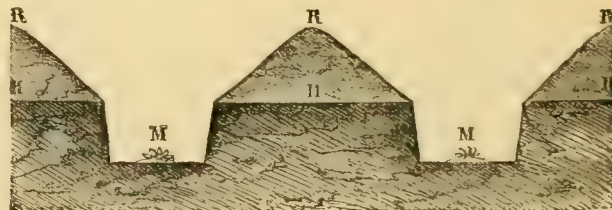


Fig. 4 — Asparagus trenches.

deeply, will not feel the beneficial effects of the sun during the spring. On the other hand, they may meet with a subsoil that is cold, damp, and dry, all of which conditions are unfavourable to the plant, independently of the fact that the manure which has been applied has great difficulty in reaching the roots, either nullifying its effects entirely or retarding them considerably. If the soil is very light, instead of digging trenches of 10 in. make them only 7 in. or 8 in. in depth. If the ground is very dry and we plant late, the trenches should not be more than 10 in. deep, and a hole of from 2 in. to 2½ in. should be dug out to receive the stool. Loose earth is then thrown in and the whole is filled up until it takes the form shown in the cut (fig. 4). If you do not wish to have an Asparagus plot distinct from your ordinary kitchen garden, open several trenches a yard wide at a distance of 3 or 4 yds. from each other and plant in two rows. By adopting this plan your Asparagus will have a considerable space over which to spread its roots, which will by this means run no danger of becoming entangled with those of the plants in the neighbouring trenches. They will thus become finer, more succulent, and will last longer. Most authors recommend the use of long trenches dug to the depth of at least a yard, and filled up with all kinds of manure and composts. Experience has shown for a long time past that no method could be much worse than the one just described. Besides being expensive, the yield of Asparagus is late, sparse, and weak; in fact, it is the primitive method of growing Asparagus.

Distance between the Plants.—When we plant in an open plot the stools should be at least 3 ft. 3 in. from each other, but if two rows of plants are grown side by side they should be 2 ft. 8 in. from each other. For our own beds we have adopted a uniform distance of 4 ft. between the lines,

the plants being 3 ft. 3 in. apart. By this means we have more room for the earth taken out of the trenches, and the mounds are more easily made and kept in order. This method, therefore, is the cheapest in the end. Whatever may be the distance, the weight of the crop is about the same if the plants be kept properly apart, but crowded Asparagus beds produce late and smaller crops of very inferior appearance and quality, besides which they are much more quickly exhausted. They require more manure, and their cultivation is much more difficult and costly. Such plantations are more liable to the attacks of insects, and become unfit for good plants, seeing that they degenerate towards the original stock much more quickly. We have, therefore, everything to lose and nothing to gain by not planting the stools at a sufficient distance apart.

(To be continued.)

GARDENING FOR THE WEEK.

Stove.

All winter-flowering stove plants have now approached the stage of their growth wherein it is necessary to pay them particular attention. Except they are got sufficiently forward before the season is too far advanced for them to attain full size and strength, it is useless to expect their bearing anything near the amount of flower of which they are capable. To accomplish this they will now have been in their blooming pots some time, so that their roots will have got fairly hold of the soil. With plants grown for this purpose, which in the case of many are either destroyed after flowering and their place taken by young stock grown from cuttings, or cut back, shaken out, and partially disrooted, it is desirable not to use larger pots than necessary to admit of the full development required; but to assist this manure water should now be freely given, as the flower they are ultimately capable of producing is much more dependent upon the strength they attain before autumn than upon assistance that can be given them immediately previous to their blooming. Stock of most things of this description is later than usual, requiring extra care to get it up to the desired condition. Give all the light possible by keeping the heads of the plants close to the glass; and by placing them far enough apart to prevent their becoming drawn.

Poinsettias, both such as were propagated from cuttings this spring and those grown on from the cut-back stools, require to be carefully watered, so as not to permit of the soil getting dry, or they are sure to lose their lower leaves, which much interferes with the appearance of the plants when in bloom. The treatment they require, with a view to the production of large or small examples, needs to be regulated according to the character of the house or position they are to occupy when in flower. Strong, tall shoots, such as when the plants are confined to a single stem, bear much the largest flowers, and are suitable for houses of considerable size, whereas in smaller structures smaller specimens will be found more useful. When the plants are large enough it is usual with some cultivators to turn them out-of-doors for a short time with a view to maturing the wood and inducing a disposition to form flowers rather than to continue making growth; the exposure in this way generally results in the loss of foliage, and on cold, late summers like the present they are better under glass, giving them abundance of air, with but little or no fire-heat, except when the weather is cold, which will equally effect the maturing process required.

Euphorbia jacquiniæflora.—So useful for cutting! If the plants are at all backward there is yet time to grow them on to a considerably larger size, as the bigger they get the more flower they will produce. They may be stopped once yet where it is desirable to give them a more bushy habit, and they can be kept on growing right through the autumn. This is a comparatively tender, spare-rooted subject, succeeding better with less pot-room than many plants, and one which is much benefited by manure water.

Plumbago rosea, **Sericographis Ghiesbreghtii**, and **Thysacanthus rutilans**.—The plants of these intended to bloom as early as they can be had in should now be fast approaching the size that is required, and ought as soon as this is attained to be subjected to a maturing process, such as advised for the Poinsettias. The ever-blooming **Scutellaria Mocciniana** may with advantage now have the flowers nipped out as they appear, which will have the effect of enabling the plants to attain more size, and so will permit of their bearing more bloom at the time when wanted. So free is this *Scutellaria* in flowering that there is

no necessity for any maturing process; simply keep the plants growing on slowly.

Bouvardias.—Where dependence for the coming winter's supply of these flowers has to any extent been placed on spring-struck cuttings, except where the cultivator has had at command sufficient heated pits or other structures wherein to grow them, the plants are in most cases so small and backward as to be in anything but a condition for producing the full amount of bloom. They likewise are amongst the freest of free flowerers, not needing the wood to be hardened before the blooms are set, in the way that many plants do. Pinch out any flowers that may be formed, and encourage growth extension by warmth, plenty of light, and sufficient moisture. Stout plants from stools that have been cut back, if wanted to bloom early, may, during the next month, receive more air, with a drier atmosphere, ceasing syringing them overhead previous to their being subjected to more heat, with a view to bringing them into flower.

Autumn and Winter Flowering Begonias.—The heat-requiring kinds of these intended for autumn and winter bloom must have plenty of light and air, with sufficient warmth to keep them moving, so as to enable them to make stout, well-developed growth, removing any flowers that may be formed, as it is impossible to concentrate too much strength in everything of this character which is intended to bloom in the winter, when the production of flowers is altogether dependent upon fire-heat and the strength stored up in the plants.

Gesneras of the zebrina section, so useful for winter and spring flowering, should now receive every encouragement to make stout, strong growth; they can scarcely have too much light, and only require slightly shading so as to keep their foliage from being injured. They look the best grown singly in 5-in. or 6-in. pots. One of the principal things in their cultivation is to keep them free from insects such as red spider, thrips, and above all mealy bug; wherever these are allowed to become established upon them the lustrous colour of the foliage gets so far injured as to destroy half their beauty, as when the leaves are perfect they add much to the bright panicles of flower. Weak liquid manure at this period, when the pots ought to be getting full of roots, will be of the greatest assistance to them.

Abutilons.—One of the most serviceable and continuous-blooming subjects, producing its flowers freely in winter, with a moderate amount of warmth, is the white-flowered *Abutilon* *Boule de Neige*. Amongst the numbers of new varieties that have made their appearance there does not seem to be any equal to this; colour and form both make it acceptable for cutting; it is alike suitable for bouquets, vases, or any arrangement of cut flowers, and likewise handsome on the plant. It propagates readily from cuttings, and is a very free grower. Where any deficiency of stock exists it is advisable to get in cuttings now, which will make useful plants for next year; and, though propagated at this time, they will not be able to bloom near so much as stronger examples during the winter and spring; yet they will produce some flowers, as it is one of those plants that, when sufficiently rooted to grow away freely, at once form bloom. Examples that were struck in the spring, and are at all deficient in pot-room, may yet have another shift. It is a good plan, where there is a bare portion of wall available in an intermediate house, to cover it with this plant turned out, if there happens to be a border where its roots can be accommodated, otherwise in a large pot or box; being a strong grower, it is no better for having too much root-room. Treated as here described, it will give a supply of its beautiful white flowers almost all the year round, and by a judicious use of the knife in cutting the strong shoots well back from time to time, the whole surface of the wall from top to bottom can be kept furnished with flowering wood. The small-growing *A. vexillarium* and *A. vexillarium igneum* are well deserving of cultivation. They are much weaker growers than the better known members of the family, producing smaller flowers in greater abundance, and are very much preferable to many of the more vigorous kinds. They are excellent subjects for forming standards of medium height. Cuttings put in now of the soft half-ripened shoots will make beautiful blooming examples next year if kept a little above greenhouse temperature during the winter. These plants, though generally classed as greenhouse subjects, I have found do very much better with intermediate warmth through the winter.

Aphelandras.—The useful autumn-flowering *A. cristata* will shortly be pushing up its bright orange-red flowers, and will be assisted by a continuous supply of weak manure water until they open. It lasts for a considerable time in bloom, and a succession may be secured by growing a portion cooler through the summer; to effect which it is a good plan to keep several strong established plants that are cut back closely each year after flowering, striking cuttings of some of the shoots in spring, which grow on to form a

succession. Where stock of this latter description exists, by keeping them for the next two months a little cooler, they will come in later in the autumn. The charming little *A. aurantiaca* Roezli should be grown in quantity by all who have a stove; its intensely bright coloured flowers are produced in the late winter and early spring months upon plants only a few inches high. Thus managed, three or four together in 6-in. pots, it has an excellent effect when placed about on the front stages and similar positions in stoves or intermediate houses. Spring-struck plants of this should be encouraged by enough pot-room, warmth, and moisture during the next six weeks to gain strength, for although, as already said, it will bloom from the merest bits, stronger examples will produce proportionately larger flowers.

***Æchmea miniata* and *fulgens*.**—The rage for variegated-leaved plants has caused many to discard these in favour of the more effective foliaged kinds; but any one possessing a number of them grown in small pots will find them most useful from this through the autumn months, as if not kept too warm they will be at their best during this period; the flowers will last in good condition for two or three months. Where there are old specimens that have been grown in strong heat and have bloomed early, they may be increased now by dividing the crowns, which should be split off from the main stem and inserted in 6-in. pots in sandy peat or loam well drained, potting them just to their lower leaves; kept slightly moist and warm they will root directly, and will form growth from the base of the bottom leaves, which will flower next autumn. Though large specimens of these with from six to a dozen blooming crowns are very effective, they are not so generally serviceable as when confined to single crowns in small pots.

***Cyrtoceras reflexum*.**—This Hoya-like plant is an excellent late summer-flowerer. Where the treatment has been such as to induce it to bloom at this time, it will now be coming in and will bear placing in a conservatory where the temperature is not allowed to go too low in the nights and where it is not exposed to a current of cold air. But whilst here it, and anything of a like character, must be carefully guarded from getting over much water at the roots, or it will prematurely shed its flowers in a few days.

Allamandas.—The individual flowers are of great use for mixing with other things in filling shallow vases, or the base of the stands now usually employed. Plants of them if well treated will continue to bloom almost the whole year round; they are gross feeders, and to keep them on flowering the roots must be continuously supplied with stimulants, which may be given in a solid state by placing an inch or two of rotten manure on the surface of the pots, boxes, or borders in which they are grown, or by regular applications of manure water. The three handsomest flowered kinds are *A. nobilis*, *A. Chelsoni*, and *A. grandiflora*, the two former much the best for cutting as they have more substance, and their beautiful rich colour makes them more effective. Managed as above described with sufficient warmth they will afford a never-failing supply up to the end of the year.

Gloxinias and Achimenes.—The earliest-flowered will now want to go to rest. Beginners in the cultivation of stove plants are frequently led to attach little importance to the gradual maturation of such things as these when the flowering is over and the leaves begin to look shabby, allowing them to die off too quickly; it is through this cause more than any other that the roots are so often found decayed in spring, in place of being plump and ready to start into growth. When they show signs of wanting to go to rest, they should still be kept in a warm house, fully exposed to the sun and light, just giving as much water as will keep the leaves from flagging to any great extent. This treatment with plenty of air will induce rest. When the leaves and stems have thus gradually died down, the roots will be in good condition, and no difficulty will be experienced in preserving them through the winter if they are kept dry, and not allowed to get too cool.—T. BAINES.

Flower Garden.

Auriculas.—The seed pods of these will now be ripe even in late districts, and the seed should be sown immediately. Many experience a difficulty in raising seedlings, but that can only occur when the seeds are bad. I use soil consisting of leaf-mould, good maiden loam and sand, without any manure. I make the surface quite level, and then just cover the seeds with fine soil. In a fortnight plants will appear, but the largest proportion of seeds will lie dormant until next year. After sowing place some Moss over the surface, and if the Moss is kept moist the soil will not become too dry. If the soil be kept in a moderately moist condition, neither too much one way nor the other, there need be no fear of the results. Offsets that were put into very small pots at the time when the old plants were repotted in May will now be ready to be shifted into 3-in. pots, and if well cared for many of them will produce trusses

of flowers next blooming time. We have now finished the potting of old plants and put in offsets from them. Some sorts require the offsets removed before they injure the plants. In others offsets are always scarce because they seldom give any increase from side growths. It is a good plan to head over any plants that seem to be breaking out from the main stem. The top will strike roots under a bell glass, and side shoots will be thrown out very freely.

Carnations and Picotees.—In such a season as this it is not likely that there will be much seed saved from these, even in the south. A good grower from the north informed me that he had not been able to save seeds there for several years. It is necessary to artificially fertilise the blooms in order to obtain seeds at all, and in doing so it is advisable to choose well-marked flowers. Mr. Dodwell has been working on the scarlet Bizarre section, and has been successful in raising some very good and distinct flowers from crossing Admiral Curzon with Sir Joseph Paxton. Any of these two fine flowers crossed with Mars (Hextall) would give good results. The pink and purple Bizarres are a weak class, but by crossing Sarah Payne with James Taylor good flowers would be produced doubtless. Light and red-edged Picotees might also be tried. This is a very weak class. Violet Douglas, Thomas William, and Mrs. Bower are all good, and may be selected as parents. We have now begun to layer, and should have been at it sooner but for the pressure of other work and not disturbing the plants when in flower. We have generally finished by the first week in August. Last year we were later. This season they will certainly not be finished by the end of September. Before commencing to layer we strip off a few of the under leaves, and remove 1 in. or so of the surface-soil in the pots; this is replaced by some sandy soil. A notch is made in the stem of the layer, and it is then pegged firmly into the new soil. After the layers are put down, the plants must be placed out-of-doors in an open position.

Hollyhocks.—The disease has appeared in some gardens, and where this has happened the best way is to dig up the plants and burn them. It is nothing more than a parasitic fungus growing on the leaves, but it enters their tissue and takes such a determined hold that any dressing strong enough to kill the parasite will also destroy the leaves. No doubt the warm, rather close atmosphere of the last few days has encouraged the development of the disease.

Pansies.—Cuttings of these may be put in whenever it is convenient. The old plants will make a fine autumn display if the very old spent stems are cut out. All small, weak stems should also be pinched out and used for cuttings. Place a rich dressing of rotten manure and loam in equal portions evenly over the beds between the plants, then peg down the medium growths over the compost, and if the soil is rather dry give a good watering. The small, hair-like roots run into the dressing in a mass, causing the plants to make a corresponding growth above ground.

Polyanthuses.—We have planted out a very large bed of seedlings into their blooming quarters; some rich manure was dug into the soil, and a dressing of rich loam was also placed over the beds previous to planting. The plants were put out 9 in. apart; they were the produce of seeds sown in April, and will quite cover the ground and flower freely next spring. We are also lifting named varieties from the open ground, and potting them after breaking the crowns into as small portions as possible. The large crowns are potted in 5-in. and the small ones in 4-in. pots. The leaves were pretty well covered with green fly, but we dipped them in soapy water, which destroyed it.—J. DOUGLAS.

Indoor Fruit.

Vines.—It cannot be too often reiterated that all Grapes intended to keep well throughout the winter should be fully ripe before the close of next month. Lady Downes, Gros Colman, Alicante, Mrs. Pince, and Muscats require a full two months from the date of beginning to colour to become fully ripe, and owing to the season being so backward, more than the usual amount of forcing will be necessary to attain this end by the time named. Whenever there is sunshine the houses should be closed up by 2 p.m., and night ventilation should be put on at 7 p.m., accompanied by artificial heat in order to maintain a minimum temperature of 65°, or, if very late, 70°. If the borders are inside give them a thorough watering when the Grapes just begin to colour, and repeat the operation if necessary any time before the fruit is fully ripe. The rainfall has been excessive, and therefore in some soils and localities outside borders will need coverings to throw off the rain, but on light soils and naturally drained borders such coverings need not be resorted to till the Grapes approach maturity, when they are necessary. In order to colour Gros Colman well, we find it requisite to let the lateral growths extend as much as possible, and to tie aside the foliage to admit full sunlight to the bunches. Grapes that are ripe should be kept as cool as possible, but apply fire-heat in cold damp weather in order to keep the atmosphere buoyant, or, the condensed moisture settling

on the berries will cause them to decay. Early Vines may now be partially pruned, *i.e.* all the laterals may be cut off, and the longest side shoots shortened back, but the old foliage should be left intact and kept free from red spider by frequent syringings. If necessary the borders should now be renovated and surface rooting encouraged by the addition of fresh material. Outside borders like those of late houses may now require protection from further supplies of moisture.

Figs.—All kinds of cultivated fruits do best when surface-rooting is encouraged by frequent mulchings, or additions of fresh soil, but none more so than the Fig. I have noted that the shallower, comparatively speaking, the border is for Figs the more fruitful are the trees. Of course, the labour of watering and mulching is increased, but not in proportion to the results. All trees now swelling off heavy crops of fruit should be thus surfaced, mulched with one-third rotten manure and two-thirds loam, with a small proportion of lime scraps and charcoal added, the whole to be covered with a slight layer of stable litter. Water freely with guano or other manure water, and syringe the trees on fine days at shutting-up time till the fruit begins to ripen, when a drier atmosphere should prevail, combined with abundant supplies of air so long as draughts are avoided. Early houses will now be going to rest, and moisture, both at root and top, must be lessened, but anything like aridity of atmosphere or real dryness at the root must be guarded against. Any useless shoots not required for next year's fruiting may be at once removed, an operation which will give those that remain a better chance of ripening. Pot trees that have done fruiting may now be placed in a sunny position in the open air to consolidate their growth, but they will require to be occasionally examined to see that the roots do not protrude through the bottom of the pots; if they do they should be cut off, as such rooting tends to an undesirable late growth of the shoots.

Melons.—The last batch of plants should now be well established, and to be certain of satisfactory fruiting not less than 75° as a minimum bottom heat must be maintained, and top heat according to the weather. On bright, sunny days the temperature may run up to 85° or even 90°, provided the walls and floors are kept sprinkled; in other respects treat them as recommended for early crops. Plants that are swelling off heavy crops water thoroughly with tepid manure water. Generally too little water is given at this stage, and consequently the foliage perishes and the fruit is flavourless. It is a mistake to suppose that starvation, by withholding water, adds flavour to the fruit. Sun, and lacking this, fire-heat and air, are the flavour-producers.

Peaches and Nectarines.—From the earliest houses the lights may now be entirely removed. If the foliage be loose, a gentle brushing will bring a good deal of it down; having performed its functions it is best off, and the wood is better for full exposure. The lights may then be entirely removed, or, if this be impracticable, all the ventilation possible should be given. Any trees growing too luxuriantly should be lifted and replanted, and the borders top-dressed; as a matter of course, now is the best time to repair and paint the houses. Treat late houses that are in full fruit liberally, as regards water, and keep red spider in check by syringing up to the time that there are indications of ripening, when plenty of air and all the sunlight vouchsafed us should have free play on the fruit by the removal of surplus shoots and laterals, and the turning aside of large leaves.—W. W.

Kitchen Garden.

Potatoes of every kind hereabouts are attacked in so really virulent a manner by the disease that it will be useless to leave any in the ground; they should be forthwith dug up, and all that are in the least affected picked out, and the others, before being finally stored, should be spread out in a dry, airy shed for a few days, and again looked over, picking out any bad ones. The remainder should then be pitted, and kept as free as possible from atmospheric influences. The kinds that are least affected with us are Magnum Bonum, Red Emperor, International, and Myatt's Ashleaf. Spring-sown Onions, Shallots, and Garlic will all of them now be ready to harvest. The bulbs should be pulled up and left on the ground for a few days to dry, and then moved to the store-room to be finally cleaned and stored in bad weather. The ground which they have occupied will be in good heart for the main crop of Cabbages for early spring use. It need not be dug, but simply cleared free of weeds. Drills should be drawn 2 ft. apart, and the plants dibbled in 1 ft. apart, to admit of alternate plants being drawn out for use whilst young, and before they injure each other. The planting of all other kinds of winter Greens should now be finished, with the exception of Coleworts, which may be planted all the year round. A last sowing of Turnips, Winter Spinach, and Lettuces should now be made, for even though the supply may seem ample, it frequently happens that these last sowings stand the winter best,

and certainly in the case of Spinach there is not that liability to run to seed that the earlier sowings possess. Thin out crops of these that were previously sown, as soon as the seedlings can be handled; and keep the ground well stirred, particularly after dashing rains. The first-planted Celery will now require earthing up, but previously remove all suckers and small outside leaves, and tie up with bast in order to prevent the soil from getting into the centres of the plants. The general stock should not yet be earthed up, for once earthing is begun, growth is checked, so that, as a rule, it is best to allow the plants to get fully grown before earthing takes place, *i.e.*, if blanched Celery be not required at an early date, at least a month should be allowed for blanching. Where dry herbs are required for winter use, this is a good time for them; Thyme, Sage, Marjoram, Mint, Basil, and Balm should all be tied in small bunches, and if hung up in any dry room or shed they will maintain their natural colour. If dried in the full sun the leaves go black, and fall off when removed to their winter quarters. Even where dry herbs are not in request the plants will be all the better if shortened back and freed from flower and seed stems. Keep the stems of Tomato plants thin, and the foliage that overshadows the fruit picked off. Ridge Cucumbers also require to be well trained out, and surplus fruit constantly picked off, and if the present sunny weather continues, a fresh mulching of soil will be necessary in order to keep them in full fruit. Vegetable Marrows also require to have the fruit removed as soon as it becomes usable, in order to prevent impoverishment of the plants, and this, coupled with a bountiful supply of water, is about all the attention which they will require. Peas, Broad Beans, and all other crops should be cleared away as soon as they have become exhausted, both for the sake of neatness, and to prevent any unnecessary exhaustion of ground.—W. W.

Extracts from my Diary—August 25 to 30.

FLOWERS.—Putting in cuttings of *Coleus* for stock. Thinning out *Chrysanthemums* to give them more light and air. Re-arranging plant houses. Potting *Pelargonium Stag's-horn* and *Lady Plymouth* for winter blooming. Tying and training *Clerodendron Balfouri* to roof of stove. Staging *Mignonette*. Sowing fifty pots and six boxes for winter flowering.

FRUIT.—Tying and stopping Melons. Pulling up old Melons, and scrubbing house thoroughly with Gishurst Compound ready for winter Cucumbers. Planting border in Vinery with *Muscat of Alexandria*, *Gros Colman*, *Trebbiano*, and *Abercainne* Seedling. Fertilising Melons and cutting all ripe fruit. Gathering *Green Gage* and *Washington Plums* for preserving.

VEGETABLES.—Tying Tomatoes in Pine stove. Cutting Mint, Tarragon, Balm, Fennel, Basil, Marjoram, Sage, and Horehound; tying them in bunches and hanging them in herb room to dry for winter use. Sorting Potatoes, the large ones for eating, and the medium ones for seed. Top-dressing small Cucumbers for planting. Planting pit with Early Ashtop Potatoes. Preparing first Mushroom bed in house. Turning manure, and mixing with leaves and Grass to put in bed for winter Cucumbers. Sowing Mustard and Cress. Digging up the remainder of *Regent Potatoes* and *Paterson's Victoria*; also *Magnum Bonum*. Tying and stopping Tomatoes. Sowing three-light pit with Early London, Erfurt, and Walcheren Cauliflower to stand the winter and for planting early in spring. Digging up *Compton's Surprise* and *Jersey Blue Potatoes*.—R. G., *Burghley*.

The Potato Disease.—The following from Mr. Harrison, Saffron Walden, is a sample of the kind of reports which we receive from all parts of the country respecting Potatoes. "The Potato crop," he says, "up to the end of July was very good, but in a day or two the tips began to show signs of disease, and then on the night of the 2nd and on the morning of the 3rd a fearful storm of hail, rain, thunder, and lightning occurred. Since then the Potatoes have rotted wholesale, there being now only one-third sound. The Rector of Woodstock is nearly all gone; I have about 2 acres in a field of the Rector and Dalmahoy growing on the side of a hill on a light chalky soil, and these are the same as those in the garden, *viz.*, three parts rotten.

Celery Fly.—This made its appearance with me much earlier this season than previously. I was obliged to have all my plants picked over twice in July, and where a large quantity of plants is grown this is a troublesome operation. Quite recently I saw in a garden in the neighbourhood some plants that had been pricked out on a bed, and large enough to put into the trenches, with scarcely a green leaf on them; the pressure of work in other departments prevented their being picked over, and they looked not worth planting. Is there any better method of destroying it than hand-picking?—J. C. F.

PLATE CXCIV.

A GROUP OF NEW DAFFODILS.

Drawn by CONSTANCE PIERREPONT.

THE annexed plate represents a group of new Daffodils, a sample, so to speak, of the Longford Bridge and Wearsdale hybrids and varieties. These are the only two collections of new Daffodils, the result of crossing and seeding, supposed to have been produced within the last 300 years—with the exception of a casual form such as Sabini, which was evidently an accidental seedling, though Dean Herbert considered it to be a natural variety; this hybrid, however, has been raised both in Holland and in England within the last few years. It would have been highly interesting could we have given from the notes of the raisers a categorical account of how these new varieties were produced, but in the absence of data we must consult the plants themselves, and we propose to allow them to tell their own tale in the gradations and variations of their flowers. Dean Herbert held the theory that if Ajax and Poeticus be crossed the outcome would be *Incomparabilis*, and by gradual inter-crossing Poeticus pure and simple would be reproduced. On this theory the Wearsdale collection appears to have had its origin, starting with Ajax or the Trumpet Narcissus. Emperor and Empress are two giants. Bicolor maximus, of the Longford Bridge collection, though not so stately in growth as Empress, has the divisions of the perianth broader and altogether more substantial, and a more sturdy plant. Volutus, from Wearsdale, the yellow Daffodil on the right of the plate, though it cannot claim to rival its relation the Emperor, is a more refined flower, the trumpet being beautifully convoluted, of a soft clear yellow, overrun with a beautiful fretwork. Bicolor J. B. M. Camm, the bottom figure in the plate, is distinct, there being no previous variety with a sulphur-coloured trumpet. Here the blood of Moschatus has intermingled with that of Bicolor, and become fixed, for Moschatus, though the trumpet is sulphur-coloured when it opens, dies off white, or almost white. The variety Shirley Hibberd is another illustration of the Wearsdale Daffodils; the trumpet is unusually open, bevelling off to a comparatively narrow neck, presenting the appearance of a wide-mouthed goblet. When exhibited at South Kensington, this flower attracted an unusual amount of attention. The variety Milneri, the bottom figure on the left of the plate, may fairly be termed original, there being no variety known to exist which at all represents the colour. The trumpet and the divisions of the perianth are of a uniform clear sulphur, while the flower is smaller than the Lent Lily, and perfect in form. Now supposing that the Wearsdale collection originated in crosses made between Ajax and Poeticus, and the outcome was *Incomparabilis*, there are amongst the varieties some remarkable Daffodils, some attaining a height of upwards of 2 ft., others dwarfed, while the range in size of flower is from 3 in. to 5 in. in diameter. The corona or cup is also very varied: some are straight and round as a gun-barrel, others wrinkled or plaited; some are slightly marked with orange-scarlet, in others the orange-scarlet is strongly infused halfway down the corona; and in one of the varieties the corona is entirely scarlet, as will be seen represented in the centre figure of the plate. The divisions of the perianth in these varieties of *Incomparabilis* vary through bright yellow, clear sulphur, and creamy white, to snow white, forming in all cases a fine contrast to the coronæ, while in size the flowers are equally varied.

Still working upon Dean Herbert's theory a group of the Wearsdale Daffodils has the corona smaller than in *Incomparabilis* and similar variations in form and coloration. This group, for the convenience of nomenclature, has been named Barri. By a reference to plate 22 in Burbidge's book on the Narcissus a good idea of this section may be gleaned, as one or more of this group is here figured under the name of hybrid Narcissi.

Still on the basis of Dean Herbert's theory we come to a third cross which brings us to a group close upon Poeticus. Generally speaking, these flower a fortnight earlier than the early-flowering Poeticus. For identification this group has been called Burbidgei, and some of its members resemble Poeticus so much that but for their apparent hybrid character they might have been placed in the early-flowering Poeticus group. The coronæ of some are slightly marked, as in Poeticus tripedalis, while others have the scarlet suffused cup, as in Poeticus poetarum. Apparently a fourth cross has been made resulting in Poeticus angustifolius pure and simple, with another form of Poeticus lower in the scale than any existing variety. This brings us to the end of the Wearsdale crossings, so that any one desirous of following as it were the work of an indefatigable hybridiser, and estimating what intelligent crossing can accomplish in formation as well as coloration, can do so in a very limited space of ground at a trifling outlay, and without the intervention of glass.

The illustrations on the plate bring us to the Longford Bridge collection, to which we have already referred. In this we have varieties of extraordinary beauty and interest, although the collection shows none of the high-class grappling with the subject of crossing which the Wearsdale does. They have a more haphazard look than one would be led to expect from the result of forty years' labour. It is now many years since varieties of the Longford Bridge collection were first figured, but this is the first time in which any of the Wearsdale Daffodils have been illustrated in colours.

The plate includes three very distinct varieties of what, in the Longford Bridge catalogue, are designated "Shortened Bicolors;" but for the purpose of tabulation they have been classed as a distinct section under the name of Nelsoni, the central figure being Nelsoni aurantius; when the flower first opens the corona is scarlet. The left hand figure a little lower down is Nelsoni, while the small flower immediately under Nelsoni aurantius is Nelsoni minor. This section evidently has been originated between Bicolor and Macleai, but the scarlet on the corona can only be surmised as coming from Poeticus poetarum.

In the Longford Bridge collection are two very dissimilar groups under the name Poculiformis, the supposition being that Montanus, sometimes called Poculiformis and sometimes Galanthiflorus from its graceful, drooping, Snowdrop-like flower, was one of the parents. For purposes of nomenclature, these have been ranged under two sections, viz.—First, Leedsi, the flowers of which vary considerably; some of them run close upon *Incomparabilis*; others again have the drooping form of Montanus, but they differ so considerably from either of the varieties named that they are fairly entitled to rank as a distinct group. They have the corona in some cases clear canary, in others lemon, and in others silvery-white. Second, Humei; of this the plate represents two flowers—the one on the extreme right, the other on the left of Nelsoni aurantius—the trumpet and perianth being delicate transparent silvery-white. In this section there are two or three varieties, of which the one named is the most refined. The one which has been named Humei paradoxus is the most uncouth of the Daffodil family. Ajax Hudibras is also squat, square, and disproportioned. The left-hand top figure in the plate is Pseudo-Narcissus Exquisite, a remarkable variety on account of its sulphur trumpet and paler sulphur divisions of the perianth.

PETER BARR.

SOME WET WEATHER SHRUBS AND PLANTS.

Two of the most conspicuous shrubs this cold and drizzly season have been the Golden Yew and the Golden Elder (*Sambucus aurea*). The first has possessed a vividness of hue unusual to it, unless it be that it looks brighter under a dull sky and against the more verdant colour of the lawn; and the second has been nearly as bright as the Golden Feather Pyrethrum. I saw a long line of it lately against a mass of evergreens, and could not help thinking that, as a yellow-foliaged shrub throughout the summer, we have nothing to compare with it for general use, as it thrives in the most unfavourable exposures. The *Aucuba japonica* cannot compare to it for colour at this season, but looks positively dull beside the Elder. What a pity the variegated *Acor* is not such a vigorous grower! Down in the south of England it thrives well, and, when planted in masses, it is a really grand thing; but in the north it almost refuses to grow, except in sheltered situations. In a high and cold locality it has no chance. In a collection of herbaceous plants I saw a few days ago, one of the most conspicuous objects was the old *Betonica grandiflora*, which was one mass of purple flower, and had been so, I was told, for six weeks or two months. The plant grows about 2 ft. high, and for lines or massing in parks against shrubs, or for herbaceous borders, it is one of the best. The bed referred to had not been disturbed for years, and yet was making most vigorous growth. Next to it was the old but pretty bright blue *Veronica corymbosa*, doing equally well and flowering in great profusion, and producing a pleasant and striking effect; I have seen no bedding plants in such flower hereabouts this season. *Lychnis flos-cuculi flore-pleno* was also bright and pleasant, producing a very noticeable effect, at a distance particularly. The Sweet Williams hold their heads up manfully, and flower well, and the annual Candytufts, the Spi-reas, and the old yellow Marigold help also to keep up the display, and seem to stand the dashing showers better than most other subjects. As an ornamental foliage plant, the old Gardener's Garter stands this season in the front rank, having grown unusually tall and fine. The Pampas Grass is almost a failure, and its substitute in colder localities, *Arundo conspicua*, is not much better, having begun to grow much later than usual.

In the flower garden Geraniums have only begun to grow, and other things are proportionately behind. *Coleus*, *Alternantheras*, and such like, simply grow less from the day they are put out, till they disappear altogether.

J. S. W.



JAMES HENRY FARRINGTON

THE FRUIT CROPS.

METROPOLITAN AND SOUTH-EASTERN DIVISION.

Gunnersbury, Acton.—Bush fruits are an average crop, and Strawberries abundant but flavourless. Of Apples, the only varieties bearing full crops are Manks Codlin, King of the Pippins, and Cockle Pippin; the fruit is small and scabbed, and the trees are suffering from blight and mildew. Pears are a very light crop, with the exception of Hesse, Louise Bonne, and Calabasse. These three varieties are plentiful, but the fruit appears to be hide-bound, and makes no progress, and it is also deficient in healthy pips, which shows imperfect setting. It will require a very fine autumn to make the Pear crop of much value. Cherries are a failure, and Plums the same, with the exception of Denyer's Victoria in a very sheltered position. Peaches and Nectarines where protected are moderate crops. Nuts and Walnuts are abundant.—J. ROBERTS.

Syon House, Brentford.—The fruit crops in this neighbourhood generally are not satisfactory. Most of them are much under the average, and nearly all are indifferent as regards quality. Apples, Pears, and Plums will be very scarce. The two former looked very promising at one time, but many of the fruits dropped off when about the size of Cobnuts. The Codlin varieties of Apples have stood best. Apricots and Peaches are a poor crop. The branches of the Apricot trees have died off more than usual this year—a strange circumstance, as the Apricot branch disease is usually attributed to drought. Strawberries and Raspberries have been very abundant, but in neither of them is there much flavour. Currants and Gooseberries in a few places are plentiful, but in others they are very scarce. Fruits of nearly every kind are late in ripening this year with the exception of Gooseberries. Tomatoes are very late, and it is doubtful whether any out-of-doors will ripen.—J. WOODBRIDGE.

Bedfont, near Hounslow.—This district ranks high as regards the extent of ground devoted to the growth of market fruits, and every year that extent is being increased, as although for several seasons past the returns have been comparatively small, yet all hope for a better future, and plant accordingly. The most trustworthy information obtained from growers shows that Apples are a very poor crop indeed, the produce resulting from a magnificent bloom being about one-tenth of an average crop, a few good crops here and there being far more than balanced by the comparative general lack of fruit. The best pickings so far are obtained from Early Juliens, and there are a few here and there on the Wellingtons and Kings. The usually well-cropped Manks Codlins are singularly scarce. Even of the fruit that originally set, more than one-half has fallen. Of Pears the returns are a little better. On the well-known Hesse, or as it is popularly termed "Hazel," there are fair sprinklings, but the fruits are so hard and woody through lack of warmth that they might almost be mistaken for Nutmegs. Beurré d'Amanlis is furnished with just a sprinkling, and Beurré de Capiaumont is a trifle better. Marie Louise, Jargonelle, Winter Nelis, and Beurré Clairgeau are furnished with the merest sprinkling, whilst much of the young wood has greatly suffered, and on many trees a good deal is dead. Plums are very thin indeed; now and then may be found a sprinkling of Victorias and Prince of Wales, but quite one-half of the fruit fell at stoning time, and the remainder is swelling slowly. Cherries have been a wretched crop generally; indeed a complete failure, with the exception of a comparatively moderate crop found on standard Morellos. It is therefore remarkable that so few Morellos are planted. All Bigarreus and May Dukes have not paid for gathering. Gooseberries, one of the most useful and profitable of market fruits, rarely miss producing a crop; this year has, however, been at least one-third below an average, but the berries have been finer than usual. One kind that is supplanting all others is the Lancashire Lad, a sure cropper. Dobson's Seedling and Crown Bob stand next in favour. The Gooseberry is, however, most profitable for market in a green state, and therefore usually not more than one-fourth of the crop is left to ripen. Red Currants have been fairly good, as have also been Black Currants, but the bushes of the latter became considerably blighted as the fruit ripened, and thus affected its quality. Strawberries have been very abundant and cheap. Raspberries have been perhaps the very best crop of the season, but they have been unusually subject to mould if gathered in bulk. The kinds most grown are Filbasket and Red Antwerp. Apricots especially have fallen much during the stoning process. Wall fruits present no feature of interest in market culture, but generally where grown they are very thin. Small nuts are little grown in this locality, but Walnuts are largely grown, and promised early to be a large crop; now the produce is very thin, indeed a mere sprinkle furnishing few or none for picking. Altogether, following upon three poor fruit seasons, the present one will terribly try the market growers, for they have little to sell, and yet have heavy

rent, rates, and wages to pay. The thinness of Apples, Pears, and Plums is mostly attributed to the excessively heavy rains that fell in the spring, and the very low temperature at setting time. Gooseberries and Currants suffered most from frost, as did also Cherries. In large market orchards no special attempt to provide shelter is made beyond such as the overhanging standard trees or here and there a high hedge may give to the bush fruits, and these where most sheltered are yielding the best crops. Briefly summed up, the results are—Apples very few indeed; Pears rather more, but likely to be of little eating value; Plums a scanty crop; Cherries even more so; bush fruits and Raspberries fairly abundant; and Strawberries very plentiful. It is, however, the standard tree crops to which the grower has to look chiefly for his profits.—ALEX. DEAN.

Southgate.—Peaches and Nectarines on open walls generally are thin, even where protected whilst in bloom. Apricots are somewhat better. Of Plums we have very few. Cherries are under the average. Apples are a very thin crop; only such hardy kinds as Keswick Codlin, Lord Suffield, Northern Greening, King of the Pippins, Cox's Orange Pippin, and Cellini have any fruit upon them worth mentioning. Pears are better, but partial, and very late and small. Strawberries have been a very heavy crop, but deficient in flavour. Gooseberries moderate. Raspberries and Currants plentiful. Nuts show more than was perceptible a short time since; in some places they are heavy crops, in others thin. So far as the failing of the Apple crop is concerned it is just what I have invariably noticed to occur in seasons when the blooming was long retarded beyond its usual period, even when there was an absence of frost during the time when it opened, and this in localities widely apart, with soil and climate considerably different from each other. In this district and almost everywhere else there was a profusion of bloom, full-sized, and the organs respectively in many places where I examined them quite perfect; but as I have always before observed when the flowers have opened very late, they did not remain more than half their usual time, dropping almost by the time they were fully expanded, and under such conditions I have never yet seen a crop of this, the most important of all our fruits.—T. BAINES.

Royal Gardens, Frogmore.—Fruit crops both here and in this neighbourhood are generally thin and of inferior quality, owing to continued rain and the absence of sunshine. Apricots are a thin crop; those here which were protected with canvas blinds—growing mostly in a strong deep loam—set an abundant crop, but during the whole season the fruit continued to drop up to the present time. Plums are an average crop and promise to be of fair quality. Damsons very thin. Cherries on walls are an average crop, but quite a failure on standards; although they set freely, all dropped in stoning. Morello Cherries are a fair crop and of good quality, though not protected in any way. Peaches and Nectarines are under average; the trees suffered much from blight and made but little growth in the early part of the season; these were covered every night with canvas blinds, and a portion of them were under a glass coping. In some gardens in this neighbourhood the trees have suffered greatly, and many are quite dead. Apples are everywhere almost a failure, and the trees present a miserable appearance, many of them being almost leafless. The only kinds that are bearing any fruit are Rosemary Russet, Lord Suffield, Frogmore Prolific, Small's Admirable, King of the Pippins, and Flower of Herts. These are growing on various soils, but the result is much the same on all of them. Pears on mostly all varieties are a good crop, and the fruit promises to be of very good quality. Of small fruits we have had a good crop; Red Currants, Gooseberries, and Raspberries are abundant, but Black Currants are everywhere thin and inferior in quality; the trees, which were much blighted, are now losing their leaves. Strawberries were scarcely an average crop; some of the blooms did not set well, a circumstance probably owing to their being exposed to so much wet during the time when they were in flower. Those which did best were—La Grosse Sucrée, Sir C. Napier, Keen's Seedling, Vicomtesse Héricart de Thury, Fairy Queen, James Veitch, and Frogmore Late Pine. Filberts and Walnuts are a thin crop, and the latter are even now dropping very much.—T. JONES.

Easthampstead Park, Wokingham.—Apricots here are a complete failure, although protected with canvas. Green Gage Plums are very thin. Morello Cherries, too, are thin, but of fine quality. Peaches and Nectarines suffered greatly from blister; they are now making some growth, but are producing a poor crop. We can scarcely look for good Peaches out-of-doors in this locality, as our soil is of a poor, black, sandy character on a bed of clay. A more unfavourable situation for the healthy growth of fruit trees could not have been selected. Great attention has to be paid to root pruning, otherwise the trees soon become barren and sickly. Apples, comparatively speaking, are a failure. Such varieties as Court Pendu Plat, Keswick Codlin, Manks Codlin, Alexander, and Cellini, a

sure bearer, are furnished with a good sprinkling; all other sorts are fruitless this season. Of Pears on walls we have a few on Beurré Diel, Bishop's Thumb, Jargonelle, Vicar of Winkfield, and Winter Nelis. Williams's Bon Chrétien does well as a rule, but like all other standards this year it has failed with us. Strawberries are an abundant crop; our best varieties are Keen's Seedling, which does well, and possesses good quality; President is also a good variety, and an abundant bearer, and British Queen prolongs the season, which at best is a short one. Black Currants are about a fourth of a crop and fine. Red and white abundant. Raspberries are a good crop. Nuts a complete failure.—NEIL SINCLAIR.

Bearwood, Wokingham.—Our fruit crops here are poor indeed. Our best crops are Peaches and Nectarines, although they received no protection whatever. Pears are a fair crop, but Apples and Plums are not at all satisfactory. Small fruits have been very good. Nuts abundant. Everything fully a month behindhand.—J. TEGG.

Welford Park, Newbury.—All out-of-doors fruits in this neighbourhood are quite three weeks later than usual this season. Strawberries and Red Currants are the only crops that have been over an average; the former have been much spoiled by the long-continued rains which we have had. Pears are an average crop, but not likely to be above half the size which they usually are. Apples, Plums, Cherries, Peaches, Nectarines, and Apricots are all far below average; several Peach and Nectarine trees are dead, and many more are looking very unhealthy; on none of the Apple trees is there a full crop; on even the Northern Greening, which seldom fails here, there is a short crop. Some of the sorts set about half a crop, but the fruits soon dropped; they keep dropping even now, and what are left will be very small in size.—CHARLES ROSS.

Cobham Park.—I have forty Peaches and Nectarines on a south wall, and on these there are not more than two dozen fruit, although they were protected with two thicknesses of netting in the spring. Several of them are quite dead, and the others look unsatisfactory. Plums on walls, consisting of Coe's Golden Drop and Goliath, are an abundant crop; the others are a complete failure. I have one standard Orleans Plum loaded with fruit, so much so that it has already split part of the tree off with its weight. Cherries are a complete failure both as regards orchard and wall trees, with the exception of Morellos, which are about a quarter of a crop. Lord Suffield Apples on espaliers are good crops, and Keswick Codlin, Northern Greening, and French Crab are loaded; some others here and there have fruit on them, but others are fruitless. On Pears there is a sprinkling, but on the few sorts that are bearing fruits they are specked; amongst the best are Winter Nelis and Easter Beurré, Glou Morceau, Uvedale's St. Germain, Knight's Monarch, Marie Louise, Dunmore, Louise Bonne of Jersey, Beurré de Capiaumont, and Aston Town; these are all well furnished with fruit, which looks, at present, promising. Apricots on walls are a very fair crop; Quinces abundant; of Filbert and Cob Nuts we have very few. Keen's Seedling, Hautbois, and Sir C. Napier Strawberries have borne splendid crops; on Vicomtesse Héricart de Thury there is plenty of fruit, but it is small; La Grosse Sucrée has been very fine, but it is not a heavy cropper; Elton Late Pine has borne fairly well; British Queen a complete failure. Of Gooseberries and Currants of all sorts we have had a very heavy crop. Our soil here is sandy with a gravelly bottom; consequently very poor, but the wet season has been all in our favour.—T. H. BOWLES.

Idsworth, Horndean.—Apples hereabouts are very thin with the exception of Codlins, which generally do pretty well. Pears and Plums are almost a failure, many trees having nothing on them. Strawberries middling. Raspberries are a heavy crop and fruit good. Other small fruits may be set down as average crops. Of Filberts we have heavy crops; Walnuts none. Of Peaches and Nectarines few are grown outside, but such as are are poor. The trees suffered severely from blister, which was succeeded by mildew. Of Apricots, very few are grown in this district, and those few are fruitless. Cherries are a failure; Morellos set well but dropped during the stoning period. Figs are thin crops. On the whole the season has been a most disappointing one as far as fruit growers are concerned. What we want now is plenty of sunshine to help to consolidate the wood for next year. Though the gardens lie high we are tolerably well protected by means of plantations. The natural soil—stiff, flinty material near the chalk, interspersed with beds of clay—is evidently not suitable for fruit, and it is a most difficult soil to work, especially in a season like the present.—N. F. FULLER.

Eaglehurst, Fawley.—Apples in this district are a fair crop, and where the trees were in any way sheltered the crops are abundant, and the trees pretty free from blight as a rule; but some are very much blighted. Of Apricots we have half a crop, and branching is very prevalent this season; some of the most vigorous trees

are the most liable to this disease. Cherries are thin, with the exception of Morellos, which are a fair crop, but all the trees have been infested very much with the black fly, which could scarcely be subdued. Pears are a good crop, notably Williams's Bon Chrétien, Louise Bonne, Winter Nelis, Easter Beurré, Beurré d'Amanlis, and Jargonelles; these had, indeed, to be severely thinned, and are still bearing too heavy a crop. Plums are a complete failure, with the exception of Early Orleans, Winesour, and a few White Magnum Bonums, and these are nearly destroyed by the maggot. Peaches, although there was a good show of bloom, did not set well, and the few that did dropped (as most of the leaves did) through the cold east wind which we had in the end of May and beginning of June. These left the trees completely naked, and I doubt if some of them will ever recover. We had no protection beyond some fish nets, but that was not enough for such a spring as we have had. Figs are a very fine crop, but they will be late; in fact nearly everything is a month later this year than last year. Bush fruits are heavy crops, and free from blight. Strawberries bore a remarkably good crop, but a great many rotted before they were ripe; those that did come to maturity were flavourless.—W. WATSON.

Heckfield, Winchfield.—The year 1879 will, I apprehend, long be remembered as one fraught with blighted hopes as regards horticulture in general and fruit culture in particular. Here at one time we confidently predicted a good fruit year, but alas, frost, snow, hail, rain, and wind were such constant visitants that all trees unprotected have failed to produce good crops, and thus I am surprised that, under the circumstances, there is so much fruit as there is. Apples average about a third of a crop; those that are fruiting best are—Cellini, Keswick Codlin, Lord Suffield, Blenheim Pippin, Golden Noble, Hawthornden, Alfriston, Golden Pippin, Ribston Pippin, Hambleton Deux Ans, and Northern Greening. Apricots well protected on both south and west walls are a fair average crop, but more branches than usual have died off, a circumstance for which the severe winter will account. Morello Cherries are a moderately good crop, but other sorts are thin, and the trees have been badly blighted. Gooseberries and Black, Red, and White Currants were never better, and never had we more of them. Of Strawberries we have had excellent crops, but a great quantity were rendered useless through the constant rain which we have had. President and Vicomtesse Héricart de Thury are the best for this district. Peaches and Nectarines which were well protected are a good average crop but very late; the winter seems to have hit some of the trees rather hard, but most of them are now growing luxuriantly. Pears are a full average crop on walls and a moderate crop on standards and cordons; they were partially protected with evergreen and other branches. The kinds that are bearing most freely are—British Queen, Citron des Carmes, Jargonelle, Seckel, Brown Beurré, Marie Louise, Autumn Bergamot, Beurré d'Amanlis, Passe Colmar, Triomphe de Jodoigne, Beurré Diel, Louise Bonne of Jersey, Beurré Hardy, Winter Nelis, Easter Beurré, Glou Morceau, Beurré Rance, Ne Plus Meuris, and Josephine de Malines. Plums are very thin; on the majority of the trees, indeed, there are none. On a west wall the following kinds are fruiting fairly well, viz., Green Gage, Diamond, Coe's Golden Drop, Kirke's, Jefferson, and Pond's Seedling. The soil hereabouts is light and sandy in character, inclining to peat, with a substratum of gravel and sand.—W. WILDSMITH.

Stratfieldsaye, Winchfield.—Fruit crops here, and as far as I have been able to learn, in the neighbourhood, are at best very partial. Of Apples, some trees are bearing heavy crops, while many others are quite barren. Altogether I may have a third of a crop. Keswick Codlin, Cellini, Duchess of Oldenburg, Northern Greening, and King of the Pippins, all useful varieties, seem to withstand adverse seasons the best, as I have scarcely ever seen them fail. Pears on walls and espaliers are a fair crop, but they are very thin on standards. Nothing could have been more promising up to the 11th of May, as the blossoms were plentiful and strong; but 12th of frost on that night destroyed almost every bloom which was unprotected. Cherries bloomed abundantly, and seemed to set well, though only to fall off somewhat later, a remark which also applies to Plums, with the exception of the Victoria. Apricots are abundant, and promise to be fine in quality though much later than usual. Peaches and Nectarines where protected are carrying heavy crops; the trees, too, are quite free from gum and perfectly healthy. If further proof were wanted as to the advantages of covering the trees with good warm material, not only during frosty nights, but every night up to at least the 1st of June, I have an example here which would at once convince the most credulous. It being intended to use part of a Peach wall for another purpose, the trees, not being required, were left unprotected. Though kept clear of insects, they are now almost as destitute of leaves as they are of fruit, whilst all which were protected are as healthy and as fruitful as could be desired. Gooseberries are very scarce, but Currants of all kinds and

Raspberries are most abundant. Strawberries were a very heavy crop, but quantities of the fruit were spoiled by the continual rains which we have had.—J. BELL.

Hackwood Park, Basingstoke.—The fruit crops in this and in other gardens in the neighbourhood are, I am sorry to say, not encouraging. The almost unprecedented wet, cold spring and summer which we have had, accompanied with little sunshine, has been very unfavourable for setting and after-maturation. Fruits this season, in some instances, are very watery and poor in flavour, especially Strawberries and Raspberries, which are from three to five weeks later than last year. The soil generally is a clayey loam resting on a subsoil of clay and chalk. Of Apricots we have but few, and late Plums are under an average. Of Peaches and Nectarines we have very few. Apples are thin and small, and are falling off the trees in quantity. Of some kinds of Pears we have a good average. Currants and Gooseberries are an average crop. Strawberries and Raspberries under an average. Filberts and Nuts a thin crop, and of Walnuts we have none.—THOS. EAST.

ErIDGE Castle, Tunbridge Wells.—Apricots in the gardens here are scarce. Peaches half a crop. Pears plentiful and good. Apples and Plums average crops. Strawberries abundant. Raspberries excellent. Gooseberries very fine. Currants plentiful. Nuts over an average. Figs abundant. I have upon the whole to report favourably on the fruit crop. Our garden lies 400 ft. above the sea without shelter, and the prevailing winds are south-west. The soil is a stiff loam resting on a natural incline to the south. All kinds of fruit trees prosper with us, except the Apricot, which fails from want of chalk in the soil, and the Peach from want of shelter, natural and artificial. Pears such as the Doyenné d'Été, Lammas, Beurré Giffard, Williams's Bon Chrétien, Beurré d'Amanlis, Seckel, Louise Bonne of Jersey, Swan's Egg, and Beurré Bosc, do well on standards, and Marie Louise, Passe Colmar, Forelle, Knight's Monarch, Bergamotte d'Esperen, Josephine de Malines, Glou Morceau, Jean de Witte, Napoleon, Ne Plus Meuris, Bezi Vaet, Pitmaston Duchess, Zéphirin Grégoire, and many others succeed well on walls. Apples of all kinds do well, but I would call attention to an Apple grown largely in this locality, viz., Golden Knob. It keeps good till May, and is altogether an excellent variety.—J. RUST.

Linton Park, Maidstone.—Fruit crops in this district are by no means good; Apples in the majority of orchards are but a very thin crop; they flowered magnificently and very late, but drenching rains and cold ungenial weather have only left a very meagre crop except in the case of a few kinds such as Keswick Codlin, Stone's Apple, and other free bearing kinds. The soil here is excellent for fruit trees, viz., a rather strong tenacious loam resting on broken stone called hassock, a soft porous stone which retains moisture in dry seasons and acts as drainage in wet ones. Common orchard Pears such as Lammas, Williams's Bon Chrétien, Ashdown Park, and Swan's Egg, are heavy crops, but good winter sorts are thin. Plums are variable; Damsons in some places are a good crop. Cherries are nearly a total failure, the only exception being Morellos, which are very largely grown on cottagers' walls and out-buildings hereabouts, and as they always sell well the produce of such trees often pays the rent of the cottage. Peaches and Nectarines on walls are a fair crop and the trees healthy; in fact, in this soil they grow rather too luxuriantly without the aid of stimulants, and the same remark applies to most wall trees in our enriched kitchen garden soils. Wet and dull sunless seasons predispose the trees to leaf and wood growth rather than to the production of stubby fertile spurs such as one likes to see. Bush fruits generally are a fair crop and very largely grown hereabouts: some plantations of Gooseberries are bearing very heavy crops; Currants moderate ones; Raspberries heavy; and Strawberries have been a good and lasting crop, although many rotted through excess of moisture. We grow Vicomtesse Héricart de Thury, Keen's Seedling, President, Sir C. Napier, James Veitch, and Traveller, all of which have borne heavy crops. We use Sir C. Napier for preserving and culinary purposes as it is bright and of brisk flavour, in fact, acid in dull sunless seasons, but good for desert when well ripened. We find 3 ft. between the rows and 2 ft. from plant to plant none too much space for Strawberries. Filberts and Cob Nuts are at present looking well and promise to be fine crops; they are largely grown hereabouts between standard Apple and Pear trees and sometimes on hill sides, but in all cases they are pruned so as to keep them in the form of dwarf very wide spreading bushes, the whole of the central shoots being cut away after the manner of Red Currants, and only the small spray-like growths retained on the main shoots at the winter pruning. The ground amongst them is dug and manured and kept clean in summer, and the result is bunches of Nuts that look like quite a distinct fruit compared with that produced by unpruned trees. At present I may safely say that in spite of adverse seasons, fruit culture is rapidly extending, as the price of fruit in market and the increasing demand for it for preserving purposes render it, if not

a very profitable, at least a safe investment where the soil is so well adapted to yield good returns.—J. GROOM.

Dropmore, Maidenhead.—The fruit crop in most places near here is very inferior with the exception of small fruits, such as Strawberries, Gooseberries, Raspberries, and Currants, all of which are good, and the same may be said of Nuts, which are unusually good. Walnuts are nearly all falling off; every fruit is much later than I have ever known it to be. Apples are very scarce, and these are all more or less dropping on all kinds of soils; there never could have been a more splendid show in the early part of the season, but the long continuance of rain and sunless weather prevented the fruit from setting freely; we had no frost to do the least damage, and the wall fruits, which are very thin in most places, did not require protection in the early season, but set badly. The kitchen garden here is composed of a good loam (brick earth), and the crops are remarkably good with the exception of wall fruits, which are under an average. On some light soils and in exposed situations the crops are much inferior. Cherries set but fell off, and the crop is an indifferent one in all the orchards hereabouts. The subsoil, with a few exceptions, is mostly gravel. Fruit growers complain sadly and not without good reason.—P. FROST.

Petworth Park, Petworth.—Early Apples, such as Codlins, Hawthornden, and Nanny, are fair crops, but keeping Apples are very thin in this part of Sussex. Apricots are abundant under glass copings, but very few on open walls. Cherries are quite a failure; a heavy crop set, but all fell in stoning, or cracked and rotted on the trees. Plums are very thin on standards and pyramids; on some sorts on walls there is a fair crop, but generally they are indifferent. Damsons are plentiful. Peach trees are in very bad condition; I have seen many quite killed where they were not well protected in the spring. My Peaches and Nectarines are looking fairly well, considering the cold wet season, under glass copings, and are bearing good average crops of fruit, but very backward. They have made no good wood at present, and unless this month proves more favourable than the last, they cannot ripen their fruit this year. Pears set well, the weather being dry, though so cold, when they were in bloom, but the fruit still is miserably small, hard, brown, and cracking now that we are having a little warmer weather. I fear Pears will be a poor crop—the skin seems so tough they cannot swell. Currants, Gooseberries, and Raspberries are abundant and very fine, but not well flavoured. Many sorts of Gooseberries are not ripe yet. Strawberries have been abundant, but half of them have been spoiled by the continual wet weather which we have had. During the past week we have gathered some good fruit, and it has been much better flavoured than heretofore. Nuts and Filberts plentiful. Walnuts thin. Figs a very poor crop. Outdoor Grapes very bad.—G. BREESE.

SOUTH MIDLAND DIVISION.

Latimers, Chesham.—Apricots are an average crop hereabouts; Plums and Cherries under average; Peaches and Nectarines bad, trees almost killed; Apples and Pears under average; Red, Black, and White Currants are average crops; Strawberries abundant; Filberts an average crop.—A. DONALDSON.

Blenheim, Oxon.—I have to record another season of disappointment, although at one time so full of promise. Apples are partial. We have very few Blenheim Pippins in this their native home; Wellingtons, too, are thin; Hawthornden, Stirling Castle, Cellini, and Atkin's No. 2 are better, but the trees are much blighted. Pears, too, are but a medium crop; old Bergamot, Jargonelle, Louise Bonne, Beurré Magnifique, and Glou Morceau notably so. Apricots, where protected by Parham's coping, &c., are good crops, otherwise thin. Plums are a fair crop, especially Damsons. Bush fruits of all kinds are good crops, and of an average quality. Strawberry crops were very heavy, especially Vicomtesse Héricart de Thury, President, and Sir Joseph Paxton, although many were spoiled by the weather. Cherries are very poor and nearly all split. Our soil is a strong limestone, but we have had too much rain even for this. Black and green fly have been unusually troublesome; wasps and birds much less so than usual.—WILLIAM CRUMP.

Moorpark, Rickmansworth.—Fruit crops here and in this neighbourhood are considerably below the average, with the exception of bush fruits—Raspberries, Currants, Gooseberries, and Strawberries, which are heavy crops; of the last a great many got spoiled by the wet. The variety from which I gathered first was La Grosse Sucrée; this came into fruit in March, and lasted till the 7th of July. We picked from the houses from 1 lb. to 1½ lb. per day. The fruit has been very fine. I am now gathering fine fruits from Helena Gloede and Unser Fritz; most of the others, about twenty varieties, are still bearing small fruits. I think Oxford Hall will prove a grand Strawberry, and that it will be largely grown when better known; it bears large fruit, the flesh is firm, the flavour

good, and the plant appears to have a good habit and constitution. Apricots under Rendle's protectors are heavily cropped, while trees on south-west and east aspects are very thinly furnished with fruit. The trees have died back very much, and the fruit dropped prematurely; I shall by degrees shorten back the spurs, which now project nearly 1 ft. from the wall. The fruit is chiefly to be found on wood laid in close; the spurs blossom profusely, but being exposed it got cut off. The trees were all protected when in blossom by a thick woollen covering. Peach and Nectarine trees almost destroyed by blister, are now recovering fast, and are bearing a fair sprinkling of fruit. On Cherries and Plums there is a fair crop; Damsons are a heavy crop. Apples and Pears middling; on pyramids the fruit looks unkindly; it is cracking, and the trees are stunted. Our soil is very light, on gravel and chalk.—J. C. MUNDELL.

Ramsey Abbey.—Peaches and Nectarines are a fair crop. Apricots only moderate. Plums very thin, only two kinds of the latter, viz., Victoria and Orleans, are bearing full crops. The only protecting material used here this year has been Yew branches, which appear to be quite as efficient for Peaches and Nectarines as more costly coverings. Apricots would, I think, have been better with something heavier, as the blossoms will not survive wet and cold in the same way Peaches do. With reference to stone fruits I think it is quite as important to keep the trees clean and the young wood thin, and freely exposed in summer, as it is to protect blossoms in spring. If the flowers are weakly they will not set well, no matter how protected. Apples and Pears are thin; except in the case of a few trees of Codlins, the Apple crop may be pronounced a failure, and especially so as regards large trees in orchards. The dwarf trees are this year doing best. Bush fruits and Strawberries are most abundant and fine. Cherries, even including Morellos, are thin and poor. Open-air Grapes cannot ripen, and Figs must be late. Filberts are a fair crop. Walnuts very partial, but mostly scarce and small.—E. HOBDAV.

Wycombe Abbey.—Apricots here are considerably under the average, and the trees are much disfigured through the loss of branches; they had protection in the spring months in the shape of canvas coverings. Plums are scarcely an average crop, but pretty equally distributed amongst such kinds as Victoria, Coe's Golden Drop, Diamond, Kirke's, and Jefferson. Green Gages are very scarce. Of Cherries we have a fair crop; the light-coloured sorts, such as Bigarreau, Governor Wood, and Bigarreau Napoleon, where not protected from such an excessive amount of moisture as we have had, are rendered almost worthless through cracking; we find that the Elton resists the effects of moisture better than any other light-coloured variety. As to Peaches and Nectarines, although they set well, the crop now is so diminished as to bring it below an average one; this may, in a great measure, be attributed to the baneful effects produced by blistering, which has been worse here this season than it has been for the past twenty years. Apples are a good average crop on such sorts as Codlins, King of the Pippins (very abundant), Cox's Orange Pippin, Wellington, Kentish Fillbasket, Rosemary Russet, and Alfriston; present appearances indicate small fruit as the ultimate result. Pears on walls are a very abundant crop, which promises to be of average size; on standards the crop is lighter. The best kinds here, considering both quality and usefulness for a successional supply, are Williams's Bon Chrétien, Jargonelle, Louise Bonne of Jersey, Beurré de Capiaumont, Fondante d'Automne, Marie Louise, Williams's Duchess, Duchesse d'Angoulême, Passe Colmar, Huyshe's Victoria, Doyenné du Comice, Beurré d'Aremberg, Winter Nelis, Zéphirin Grégoire, Josephine de Malines, Knight's Monarch, Glou Morceau, Easter Beurré, and Beurré Rance; the above varieties usually come in with us in the order in which they are named. Raspberries, Gooseberries, and the different kinds of Currants are average crops, but with the exception of the Raspberries all are deficient in flavour. Strawberries were abundant, but not equal in size or quality to those of ordinary years. I may say without fear of contradiction that Vicomtesse Héricart de Thury is the most useful and best flavoured variety extant for general purposes, and President may be placed next to it. Nuts are an average crop. In the surrounding neighbourhood the Apple crop is below the average; so also is that of Cherries and Plums. Damsons are more abundant, and small fruits are tolerably plentiful.—GEO. THOS. MILES.

Great Tew Park, Enstone.—Here, as in most other localities, we have passed through a trying ordeal; but, taking the wet, cold, and sunless season into account, I must say that several of our crops have turned out better than I anticipated. Black Currants have been good, and extra fine in quality. Red and White Currants are a good even crop, but very much infested with caterpillar, for which we find nothing better than hand-picking. Raspberries are a good crop, and have made fine growth. Gooseberries are only half a crop, bullfinches having eaten the fruit buds last spring. Strawberries, upon the whole, have been a light crop; our favourite

variety is Hooper's Seedling, which appears to be an improved Keen's Seedling; it is a good cropper, fine in flavour, and, as a rule, can be depended upon. We also like Newton Seedling and Prince of Wales. Wall fruits are a partial crop. Pears have succeeded best with us on a west wall; those that have done best (trained on the upright cordon system) are Napoleon, Williams's Bon Chrétien, Beurré Hardy, Doyenné d'Alençon, Beurré du Comice, Fondante d'Automne, and Beurré d'Amanlis. Twelve Apple trees on the same wall are almost a failure. Pears on an east wall that are carrying good crops are Napoleon, Winter Nelis, Bergamot d'Esperen, Thompson's, Louise Bonne, Doyenné d'Eté. Plums both on east and west walls are a partial crop; we have a fair sprinkling of Green Gages. Cherries, with the exception of Morellos, have been a light crop; all our Cherry trees have suffered very much from black fly this season. Apricots on the south walls are quite a failure, although we took the precaution to cover them with No. 3 shading, a fine warm, light fabric. As usual, our orchard-house is a great success, and has been for these last thirteen years. I almost omitted to state that Apples are quite a partial crop in this neighbourhood.—JOHN MELVILLE.

WEST MIDLAND DIVISION.

Warwick Castle.—The fruit crops in the gardens here are, as a rule, very scant. Small fruits, such as Red and Black Currants, have not been an average crop, the former better than the latter; but what we had have been fairly good. Gooseberries have been very scarce; Strawberries a fair crop, but few arrived at perfection, the greater portion rotting before they changed colour. Apples on many trees set fairly well, but the majority of them have fallen since; on some few trees there is a fair crop left. Pears are very partial; some few trees are bearing a fair sprinkling. Plums are a very partial crop, and the trees are smothered with black fly. Cherries set well, but black fly damaged the trees so much that the fruit fell off. We have but a few trees of Apricots, but on these we have good crops. Fruit is very partial, so far as I have seen in this neighbourhood. The soil in which our trees grow is a light one, resting on gravel; some portions of the ground rest upon a freestone or soft rock. Rhododendrons flourish well on the top soft sand of the rock. Our garden suffers from gales of wind from the west or west by north.—DANIEL JUDG.

Tortworth Gardens, Falfield.—Fruit crops in this district at one time promised to be abundant, but the weather continued so excessively wet and the temperature low when the greater part of the trees were in bloom, that the result is only partial crops. Apples with us are an average crop, the later kinds being much the best, although there is a fair crop on some of the earlier kinds. Cellini, Beauty of Kent, Cox's Pomona, Hawthornden, and Keswick Codlin, where somewhat sheltered, are abundant, and the same may be said of Lord Suffield, Manks Codlin, and Stirling Castle. The latter is a great favourite here, and should be in every collection, however limited. Dessert kinds, such as Reinette du Canada, Golden Harvey, Lord Burghley, Royal Russet, Cox's Orange Pippin, Melon Apple, Pine-apple Russet, Court of Wick, Ribston Pippin, Golden Pippin, Kentish or Vaun's Pippin, Cockle Pippin, Duke of Devonshire, Pearson's Plate, Lodgemore Nonpareil, Wormsley Pippin, Worcester Pearmain, King of the Pippins, Sturmer Pippin, Brad-dick's Nonpareil, Northern Spy, Claygate Pearmain, and Adams's Pearmain, are all bearing a few fruits, mostly on the sheltered side. I find that the more exposed parts of the trees are casting their fruit, which, I think, must be owing to imperfect fertilisation. Pears are quite an average, and promise, so far, to be very good. I notice full crops of Beurré Duhaume, Anna Nelis, B. Sterckmans, B. d'Amanlis, B. Goubalt, B. Diel, B. Leonie Clerc; a few on B. Bachelier, Bon Chrétien, Comte de Lamy, Conseiller de la Cour, Chaumontel, Duchesse d'Angoulême, Doyenné du Comice, Doyenné d'Eté, Eye-wood, and Fondante de Malines. Josephine de Malines is the best late Pear grown here. Many other kinds are bearing a few fruits. Apricots are much under average. Plums are fair average crops, but dropping very much through the ravages of the Plum maggot. Peaches and Nectarines are very poor. Bush fruit abundant, but sadly damaged by the caterpillar in spite of all means to keep it in check. Strawberries have been a fine crop, but wanting in flavour. Filberts and Cob Nuts abundant and very promising. Cherries very good. Quinces and Medlars partial crops. Cider Apples are very thin indeed hereabouts.—THOMAS SHINGLES.

Madresfield Court, Great Malvern.—The unusual coldness of the season up to the end of July, combined with an almost continual rainfall and little sun, has had a most prejudicial effect on fruit crops generally, and all kinds are here fully a month late. The bloom generally was good, but from the causes just mentioned it set imperfectly. Apples are very thin; Pears a fair crop, very good here on walls and pyramids, but late. Apricots moderate; Peaches and Nectarines a full crop, but great difficulty has been experienced in

keeping the trees clean. Plums are a moderate crop; such kinds as Victoria, Rivers's Prolific, and Magnum Bonum are bearing most freely. The best dessert kinds on walls are very thin. Bush fruits are a moderate crop, clean and fine; Raspberries unusually good. Strawberries abundant, but small and lacking flavour. Nuts abundant; Walnuts have nearly all dropped. Figs on walls are a fine crop. With a continuance of favourable weather, such as we are at present experiencing, there may be time for the late fruits to ripen, but even under the best of weather there will be neither the size nor quality which we usually get in good seasons.—WILLIAM COX.

Eastnor Castle, Ledbury.—Fruit trees of all kinds in this locality up to the blooming period gave promise of abundant crops, but a continuance of cold rain and an absence of sun during the time they were in flower paralysed the sap and washed the pollen into paste; the result is, partial crops of imperfectly fertilised Apples, Pears, Plums, and Cherries. Amongst Apples we find the Old Keswick Codlin, Lord Suffield, Lord Grosvenor (a fine early kitchen Apple), Ecklinville, and Hawthornden, bearing good crops. Ribston Pippin and other choice dessert kinds are thin, and cast their fruit. Pears on walls are plentiful, but very late. Jargonelle, Williams's Bon Chrétien, Pitmaston Duchess, Crassane, Beurré d'Amanlis, Passe Colmar, Belle de Noel, Maréchal de la Cour, and Josephine de Malines, have required thinning; the fruit is clean, and is now swelling nicely. The kinds of Plum usually grown on walls are a fair average crop, but standards and pyramids are still casting their fruit, the cold weather having been so much against the stoning of imperfectly set fruit. Apricots are about half a crop; trees clean and free from weevil. Red and White Currants abundant, and very fine. Black Currants injured by frost, and badly blighted. Raspberries plentiful, fine but deficient in flavour. Strawberries on high ground have been abundant; in low situations the flower-stems were injured by the cold rain. With us, Paxton, President, and La Grosse Sucrée have produced fair crops of fruit. Of late kinds, Oxonian, Elton, and Frogmore Late Pine, are just coming in, and in the event of the weather continuing fine, these useful old varieties will give a supply of fruit up to the end of the month. The Queen section have not done well. Damsons and Nuts are a heavy crop. Soil a heavy calcareous loam, thoroughly drained, and well adapted for stone fruits. I have nearly overlooked Peaches and Nectarines, of which we have excellent crops. The trees are clean, free from blister, and, where lifted last autumn, the foliage looks dark and healthy. Trees that were not lifted look pale, and show signs of having suffered. We use glass copings, 2 ft. wide, from the time the flowers begin to open until danger from spring frosts has passed away. Formerly, in better seasons than we have had of late, we had many blistered leaves and gouty shoots, but the use of glass copings has completely stopped it. In this low-lying garden we are obliged to keep the roots within bounds, and lift every second year. Potatoes of all kinds are badly affected with disease; three-fourths of the tubers of early kinds that we have taken up are tainted, and having been caught before they were ripe they are waxy and flavourless. The disease first appeared under glass in March, when it attacked and destroyed fifteen lights of forced Potatoes.—W. COLEMAN.

Drayton Manor, Tamworth.—Apples, Apricots, Pears, Cherries, and the best varieties of Plums are again a failure; but the following are exceptions, viz., Lord Suffield, Hawthornden, Northern Greening, all varieties of Codlins, and also Worcester Pearmain. This variety will become a general favourite; it is evidently an Apple that may be relied on for a crop of medium-sized handsome fruit. Dessert Apples generally are conspicuous by their absence. Pears are not quite so scarce as Apples; the following are bearing fair crops on walls, viz., Beurré Diel, Beurré d'Amanlis, Beurré Magnifique, Brown Beurré, Baronne de Mello, and Glou Morceau; on espaliers and pyramids—Williams's Bon Chrétien, Marie Louise, Beurré Clairgeau, Aston Town, and Seckel. All the above are producing satisfactory crops. I might especially mention Baronne de Mello as being one of the best flavoured and surest croppers of all Pears on walls, it having never failed to furnish a first-class crop here for the past fifteen years. Apricots are very light, and, what is much worse, the trees are dying wholesale, young healthy trees too. Nurserymen, I fancy, may anticipate a brisk trade in these during the next planting season, as I believe the complaint to be general. Cherries have been very light, also Plums with the exception of Denyer's Victoria, Kirke's, and Green Gages on walls, which are good. Damsons are unusually abundant. Currants not quite so plentiful as usual. Strawberries and Raspberries good, but the former damaged by much rain and dull weather. Kitchen garden crops generally are looking well, but quite five weeks later than usual.—O. THOMAS.

Crew Hall.—Although this has been a most exceptional and trying season, not only as regards the severity of the past winter and coldness and lateness of the spring, but also as respects the cold,

sunless, and wet summer which we have lately had, fruit on the whole in this district is rather above the average, but everything is a month later than usual. Should the remainder of the season be warm, dry, and otherwise favourable to the ripening of fruits, those which have still to ripen may be as good in quality and quantity as the average of seasons, otherwise much will be small and unripened. Owing to the absence of frost at the time when fruit trees were in bloom and the fruit setting, trees in situations sheltered from cold winds, as ours are, had a large quantity on them, but the subsequent cold temperature and excessive wet caused much of the fruit to fall. Still there is rather more than an average crop of Apricots and Peaches. Apples, Pears, Plums, and Cherries are average crops, and of Damsons we have had the largest crop which we have had for several years, a circumstance which in this county is important, as they are very largely grown. We have had plentiful crops of Nuts, and good crops of all small fruits except Strawberries. These blossomed and fruited well, but the heavy rains caused many, both of the growing and ripe fruit, to rot; therefore the crop has been less in quantity and inferior in quality to what it would have been had the weather been favourable. It was also very late in ripening. In exposed situations Black Currants are scarce, the cold winds having injured them. Wall fruits with a few exceptions are good average crops but late, and will require a fine dry autumn to ripen well. The kinds of fruits which I have found to do best out-of-doors this season are: Peaches—Hale's Early, Dr. Hogg, Alexandra Noblesse, Dymond, Violette Hâtive, Sulhamstead, Prince of Wales, and Stirling Castle; Nectarines—River's Orange, Elrude, Lord Napier, and Violette Hâtive; Plums—Victoria, Kirke's, Early Orleans, Thornhill's Seedling (a local kind), and Green Gage; Pears—Citron des Carmes, Jargonelle, Louise Bonne, Marie Louise, Winter Nelis, Glou Morceau, Winter Doyenné, Josephine de Malines; Apples—Irish Peach, Lord Suffield, Keswick Codlin, Hawthornden, Worcester Pearmain, Minchall Crab, Cox's Pomona, Catshead, Dumelow's Seedling, and Ribston Pippin; Strawberries—Keen's, Vicomtesse Héricart de Thury, President, James Veitch, and President de la Cour.—W. WHITAKER.

Witley Court, Stourport.—This is, doubtless, one of the most unfavourable seasons on record as regards fruit culture. In spite of the profuse blossom which we had upon all kinds of trees, the fructification lacked vigour, the embryo fruits falling in showers. Apricots are very partial, many trees suffering from the low state of the ground temperature, whole branches in many instances dying off. Plums are in many instances heavily cropped. Damsons are bearing abundant crops, and so are such kinds as Victoria, Rivers's Early Prolific, and the Pershore. Belgian Purple and Prince Englebert are also two of the most reliable of Plums for all seasons, and they are bearing freely this year. Prince of Wales, Jefferson, and Denniston's Superb are also carrying good crops. Peaches and Nectarines have suffered much from curl, many trees being quite killed, or so disfigured as to warrant removal. Apples are partial, and the trees, so far, are making unsatisfactory growth. To mention particular sorts that are bearing crops this season would be somewhat invidious, as they are generally bad. Pears, although more plentiful, are by no means satisfactory, and I fear, except we have a particularly long and favourable autumn, that their quality will be but indifferent. Amongst those that are bearing the largest crops are Williams's Bon Chrétien, Autumn Bergamot, Beurré Bose, Beurré d'Aremberg, Beurré Sterckman's, Louise Bonne of Jersey, Maréchal de la Cour, Marie Louise, Seckel, Bergamotte d'Esperen, and Uvedale's St. Germain. Cherries are very partial and poor in quality. Gooseberries are under the average, but they are good in quality and the plants are healthy. Black Currants are a poor crop, and the bushes are much blighted. Red Currants are an average crop. Raspberries abundant. Amongst the best are Prince of Wales, Fastolf, and Antwerp (red). Mulberries are heavily cropped; Walnuts a failure; Filberts abundant. Strawberries have been plentiful and of fair quality considering the wet weather. Such as were supported on branches coloured best, and were free from slugs, which are so troublesome this season. The best cropping kinds are President, Pioneer (a fine early kind), British Queen, Lucas, Sir Joseph Paxton, Dr. Hogg, and James Veitch.—J. WESTLAND.

Downton Castle, Ludlow.—The fruit crop, taken as a whole, presents in this neighbourhood a fair average, taken in comparison with that of former years. Although the late frosts which marked the termination of an unusually cold and backward spring destroyed to some extent the very favourable anticipations which had been formed concerning the Apple crop, nevertheless there is every reason to believe that in this district at least the harvest of cider Apples will be fully up to the average. A late spring, and an almost sunless summer have had the effect of leaving this, in common with all other fruit crops, fully a month later than usual. Bush fruits of all kinds have been excellent. Currants, black, red, and white, have borne in this neighbourhood unusually heavy crops. The

same remark applies to Gooseberries; while the crop of Raspberries has been far above the average. Of wall fruits there are fair crops of Pears, Plums, Cherries, and Apricots. Peaches (outdoor), as might have been expected from the character of the season, will not be good. The crop of Filberts promises to be the best that has been known for many years; but the Walnut crop in this neighbourhood is a complete failure. Strawberries were very late, and though most kinds set well, the excessive wet had a very injurious effect upon the unripe fruit, causing great numbers to rot before attaining maturity. The soil which predominates in this district is a stiff clayey loam, of no great depth, resting on a foundation of dark sandstone. The fruit garden at Downton slopes gently to the south, and is partially protected from the north. The principal kinds of Apples grown here are Blenheim Orange, Mère de Ménage, Northern Greening, Wormsley Pippin, Keswick Codlin, and Devonshire Red. Of Apricots, which are good where protected, we grow Moor Park, Breda, and Kaisha. Of Nectarines we grow the Murray, Downton, and Elruge. Of Peaches, the Noblesse, Royal George, Early Alfred, and Barrington.—C. SLADE.

NORTH MIDLAND DIVISION.

South Rutland.—With some very few exceptions only my own orchard trees and those of my neighbours have suffered, more or less, from the unfavourable state of the weather during the spring and early summer months. A season more promising at first I can scarcely recall, but a change came over the trees when they ought to have been setting their fruit, and the dire effects of protracted wet and cold were soon painfully exhibited. Apples that are here usually counted by hundreds will scarcely be counted by tens; the healthiest tree I have is one whose name I do not know; it belongs to the class of culinary Apples, of which Cox's Pomona is one, and to which it bears a resemblance, only it has not its brilliancy of colour. The leaves are large, of a dark green colour, and glossy; the shoots are strong and vigorous, and they are pale green, and somewhat glaucous at the points; it is a large Apple, and of better flavour than Cox's. Irish Peach Apple has suffered but little, and has nearly its complement of fruit; Blenheim Orange, Rutland Foundling, Waltham Abbey Seedling, and Cellini, can boast of a few Apples here and there to be seen among the branches; but of the rest most have not a single fruit, and some are almost leafless, such as Court Pendu Plat, Cox's Pomona, Orange, some of the Pearmain, Bess Pool, Reinette du Canada, and Wyken, Keddlstone, and Ribston Pippins. Of Pears, those that have defied the weather here are Beurré Diel, Winter Nelis, Swan's Egg, Louise Bonne of Jersey, Williams's Bon Chrétien, and Doyenné Boussoch, most on south or west walls; Glou Morceau and Josephine de Malines have very slender crops; Marie Louise seems to have suffered most of all. Plums in general have done well. I have three sorts that are loaded with fruit, Rivers's Early Prolific, Denniston's Superb, and one that I have named the Zulu, about which I hope to tell you more when the fruit ripens. Rivers's Early Favourite and his Autumn Compote, Jefferson, Washington, Guthrie's late Green Gage, Diamond, and Prince of Wales, have nearly their usual amount of fruit; Green and Purple Gage hang rather thin on the trees. Damsons are very plentiful, and so are Filberts and small Nuts, but Walnuts will be very scarce. Cherries have not been so plentiful as usual with us. Our soil is light and well drained. The rain would have done us no harm had the soil been sufficiently warmed by the sun's rays.—B. S.

Belvoir Castle, Grantham.—A late season, by retarding the blossoming of fruit trees, is often a favourable one in regard to crops; but the present season is altogether an exception to the above rule. The season is the latest I ever remember, and the failure of anything like satisfactory crops of fruit is general in this district. Our orchards are on the lower Lias clay, the surface modified in a degree by cultivation, but in its compact form still within reach of the roots of fruit trees. The cold and wet weather has therefore operated most injuriously on the trees, checking root action, and causing a very fair show of blossoms to fall off. The Apple crop is the worst I can remember, a few trees near buildings alone bearing satisfactory crops. Hardy and delicate kinds have suffered equally, and the foliage is yellow and unhealthy, giving rise to apprehensions as to the succeeding year's crops. The above remarks apply to our orchards. Within the walled garden, where the soil has been made, a better state of things exists. Pears on walls are bearing fairly well—the ripening of the fruit is another matter. We have Beurré d'Été, Jargonelle, and Williams's Bon Chrétien with good crops; Beurré d'Amanlis, Beurré Superfin, Beurré Suprême, Josephine de Malines, Knight's Monarch, Shobden Court, and Doyenné Boussoch showing a fair promise of fruit. Apricots are about an average crop, but will not be ripe until September according to present appearances. Peach trees on south walls were seriously injured by March winds, and though struggling into growth will never fairly recover.

Wall Plums are thin; some standard trees of Orleans, Prince Englebert, and Winesour are heavily laden. Morello Cherries on prepared soil are much blighted, but will afford a partial crop. Strawberries have suffered much from the frequent heavy showers, or the crop would have been abundant. Raspberries are sufficiently productive, and Currants have produced moderately good results. Gooseberries are thin; the lateness of all these fruits is remarkable. Frogmore Late Pine Strawberry will probably prolong the supply until September.—W. M. INGRAM.

Cole Orton Hall, Ashby de la Zouche.—Apples and Pears bloomed and set well, but owing to the wet, cold weather, they have nearly all dropped off. The soil was so cold that the trees had not energy sufficient to support the fruit. Strawberries promised to be very plentiful, but the greater part damped off at the flower stalk after they were half grown, and what did ripen were not well-flavoured. Of Cherries we have a few on walls of good quality, but they are a thin crop generally. Plums here and in the immediate neighbourhood are a poor crop, but in some places they are plentiful. Peaches and Nectarines are a fair crop, but I fear they will never ripen. Small fruits of all sorts are plentiful, except Raspberries, but they are rather small. Figs are very plentiful, but I doubt they will never come to perfection. Apricots are very scarce, but good crops of them may be found in the district. Of Nuts we have half a crop. This year has been most disappointing and disastrous. Early in the season every one thought we should have a great fruit year. The trees were like nosegays, so plentiful were the blossoms, but nothing could withstand such weather as we have had.—M. HENDERSON.

Aswarby Park, Folkingham.—The soil here is a cold, heavy, black loam, resting on strong blue clay full of water. Out of about fifty varieties of Apples Lord Suffield is the only one that is carrying a full crop. Orchards that ought to have produced from 200 to 800 pecks of Apples will not yield more than from 20 to 50 pecks. Peaches and Nectarines are a complete failure. They looked well up to the last week in June, when they were struck with some blight that completely paralysed the trees. They shed their foliage in two days, leaving nothing but the fruit on the trees, and in less than a week the whole of the fruit fell off, and most of the trees seemed to be three parts killed, and some of them are quite dead. Of Apricots and Figs we have full crops. Of Pears the following varieties are bearing nearly full crops, viz., British Queen, Princess Royal, Broom Park, Hacon's Incomparable, Althorp Crassane, Beurré de Picquery, Glou Morceau, Knight's Monarch, Winter Nelis, Beurré Bosc, Crassane, Basiner, Marie Louise d'Uccle, Joly de Bonneau, and Ne Plus Meuris. Strawberries have been a most abundant crop but deficient in flavour. Our varieties are Keen's Seedling, Garibaldi (true), Sir Joseph Paxton, and British Queen. Of Gooseberries, Red Currants, and Black Currants we have full crops, and the fruit is very large. Plums and Walnuts are a failure.—RICHARD NISBET.

Lenton Hall, near Nottingham.—We are two miles from Nottingham in a south-westerly direction, and we occupy an elevation equal to that of Nottingham Castle. Our soil is mixed, as we are on the edge of a "fault;" one part, that lying towards Wollaton and Nottingham, is light, on the Nottingham sandstone; the other strong, viz., that lying towards Derby and the Trent. The garden is on both soils; the orchard on the strong exclusively. We are well sheltered by trees on all sides. In the orchard Apples are a poor crop on old and high trees, but younger and lower ones are growing and bearing fairly. The same remarks apply to Pears. Plums are a fair crop. Damsons not so good. Of Walnuts we have comparatively none; but Cobnuts are a good crop. Apricots are a fair crop, and the same may be said of Peaches and Nectarines. Plums, too, are a fair crop on both walls and bushes. Pears on walls are poor, but a fair crop on pyramids and bushes. Gooseberries and Raspberries are full crops. Strawberries good; but deficient in flavour. Black Currants poor; they became honeydewed and fell off heavily before they were quite ripe. Red and White Currants are a fair crop. In short, our fruit crop is on the whole moderate.—N. H. POWNALL.

Thoresby, Ollerton.—Of Apricots we have about half a crop, and of Apples very few; Pears are an average crop. Of the finer sorts of Plums we have not many, but Damsons and Mirabelles are fair average crops. Gooseberries are plentiful and fine. Strawberries abundant and the fruit large. Currants—Red, White, and Black—are plentiful. Raspberries abundant and fine. Filberts, being in a sheltered situation, are plentiful. Of small fruits in general we have good crops in this neighbourhood.—A. HENDERSON.

Welbeck, Worksop.—Apricots are an average crop. Peaches and Nectarines under average, but the trees are very healthy. Of Pears we have very few indeed; and of Apples scarcely any. Plums are very fine. Morello Cherries a partial crop; and of other varieties we have very few. Strawberries are plentiful. Gooseberries, Raspberries, and Currants are under the average.—R. CARR.

Chilwell, Notts.—We have upwards of 90 acres of fruit orchards, mainly Apples; but we have also a good many Pears and a few Plums and Damascenes. This season is undoubtedly the worst as regards fruit culture which we have experienced for many years. Apples are a complete failure; during the whole time they were in bloom the blossom, which was exceedingly abundant and very fine, was subjected to a daily downpour of rain, which reduced the clusters of bloom to so many decaying masses like tufts of wet hay. The only exceptions to this state of affairs are the Russian or Duchess of Oldenburg and Walker's Summer Brooding, which are bearing fair crops. The former variety rarely if ever fails to bear, even when such sorts as Keswick, Domine, and the Barton Free Bearer succumb. I fear we have no prospect for next year, most of the trees being so covered with caterpillars that they have hardly an entire leaf on them, and present the appearance of having suffered from a severe frost. Pears vary a good deal; some of the earlier and hardier varieties are bearing fair crops, whilst on the later sorts there are none. Those which show the best are Early Crawford, Hessele, Beurré d'Amanlis, and Grey Beurré. Plums are very scarce with the exception of Victorias, which are from one-third to half a crop. Damascenes are a good half crop. Small fruits, such as Gooseberries, Currants, and Raspberries, are very good; but the two former have been stripped of every vestige of foliage by the Gooseberry caterpillar. Of Peaches we have none, and but few Apricots. Wall Pears are fair crops in most situations. I suppose the day is not far distant when we shall see our walls devoted to good Pears instead of second-rate Peaches, which are so often a failure, and these latter will take their legitimate place in the orchard house, where one may always count on a crop and seldom if ever be disappointed.—ALFRED H. PEARSON.

Attingham, Shrewsbury.—Fruit of all descriptions is from three weeks to a month late. Apricots are a full crop, though small, and a good many are falling off now; the trees have lost several large branches, and some have died altogether. Peaches and Nectarines are an average crop; the trees suffered greatly from curl and blister in the spring, but they are growing freely now. Plums are a full crop (especially Damsons, Victoria, and Diamond), except Green Gages, which are very thin. Apples are about an average crop; of some kinds we have a heavy crop, while others are very thin; King of the Pippins, Winter Greening, Brabant Bellflower, Keswick Codlin, Yellow Ingestrie, Norfolk Beefing, Hawthornden, and two others of which I do not know the names, are bearing the best crops with us this year. Amongst Pears, Green Yair, Comte de Lamy, Althorp Crassane, Beurré Superfin, Hessele, and Glou Morceau are the best bearers with us this year, though Glou Morceau is very much spotted with black fungus. Gooseberries and Black Currants are a very small crop; the bloom was destroyed by the severe weather which occurred about the middle of April. Of Red and White Currants and Raspberries we have good crops. Strawberries have been plentiful, though great quantities have rotted without ripening through so little sunshine; consequently, they have been comparatively flavourless. The soil in this garden is loam resting on gravel.—G. PEARSON.

Bloxholm Hall, Sleaford.—Fruit crops in this locality are with few exceptions much under the average. Apples, Pears, Plums, and Cherries blossomed well and promised to be abundant, but with the exception of Keswick Codlin, Warner's King, Manks Codlin, Cellini, and Downton Pippin, which are bearing fair crops, all sorts are a failure. Pears on walls are a fair crop, but on pyramids and standards there are very few. Plums altogether are scarce; Cherries a failure. Apricots where protected a fair crop, but the loss of branches on young and old trees alike has been great, and in some cases the trees have been killed outright. Peaches are a fair crop where protected with Frigi Domo, but their leaves are much blistered. Strawberries have been an abundant crop, but many rotted through excessive wet. Raspberries are abundant. Gooseberries a fair crop; Black, Red, and White Currants rather under average, but fair crops. Nuts are abundant, but I do not think they will ripen unless we have better weather.—D. LUMSDEN.

Osmaston Manor, Derby.—Apples, Pears, Apricots, Plums, Damsons, and Cherries are but medium crops hereabouts; Strawberries, Raspberries, Gooseberries, and Red and Black Currants heavy crops; Peaches, Nectarines, and Figs are only grown indoors. Of Walnuts we have none, and Filberts are not grown in this district. The soil here is almost all gravel, and to grow fruit well clay should be used to co-operate with it. The following are the best fruits for this district: Pears—Marie Louise, Louise Bonne of Jersey, Williams's Bon Chrétien, Gansel's Bergamot, Comte de Lamy, Beurré d'Aremberg, Easter Beurré, Winter Nelis, Glou Morceau, Passe Colmar, and Jargonelle. Apples (dessert)—Court Pendu Plat, Cox's Orange Pippin, Gravenstein, Ribston Pippin, Sturmer Pippin, Margaret, Fearn's Pippin, and others; kitchen—Blenheim Pippin, Cox's Pomona, Hawthornden (both old and new), Keswick

Codlin, Manks Codlin, Northern Greening, Dumelow's Seedling, Warner's King, Waltham Abbey, Lord Suffield, Minchall Crab, and others. Cherries—Elton, May Duke, Black Tartarian, Black Eagle, Bigarreau Napoleon, and others. Plums—Blue Gage, Green Gage, Coe's Golden Drop, Dove Bank, Kirke's, Jefferson's, Victoria, and Washington. Black Currants—Naples, Warner's Grape and Victoria. Gooseberries—Warrington and Crown Bob.—J. BOOTH.

SOUTH-WESTERN DIVISION.

Badminton, Chippenham.—Fruit crops in this neighbourhood are, generally speaking, very unsatisfactory, the quantity being light and the quality poor. With us Apricots are quite a failure, and the trees seem to lose a good many branches. Peaches and Nectarines out-of-doors, except in very sheltered spots, have but little fruit on them; Rivers's Orange Nectarine is an exception, being first-rate both in fruit and foliage. Apples are scarce and the trees very much blighted. Pears, on the other hand, are a fair crop and very healthy; likewise Plums. Small fruits have been abundant and good, Currants and Gooseberries particularly so. The continued wet spoiled many Strawberries, but the crop was good. The Gooseberry caterpillar has made sad havoc in many gardens around this part, many of the trees being entirely stripped of foliage.—WILLIAM NASH.

Moreton, Dorchester.—Fruit crops in this district are on the whole tolerably good, but much in want of warm, sunny weather. We are fully three weeks later than usual. Peaches on walls, where they received some slight protection until June, are bearing fair crops, but unless we get some warm, sunny weather they will be very late in ripening and will be deficient in flavour. In orchard-houses crops are good and the fruit fine. Plums are a fair crop, best where the situation is high and dry. Pears are good on walls, but very light on espaliers and pyramids. Figs good. Apples are very light, and what fruits we have are very small; all trees blossomed well but did not set, owing to the low temperature and moisture-saturated atmosphere at the time of flowering. Our best sorts are Blenheim Pippin, Hawthornden, Tom Put, Keswick Codlin, and Sturmer Pippin. Strawberries have been a good crop, and the fruit fine, but lacking flavour, and many rotted. Raspberries good and fine. Currants of all kinds good. Gooseberries generally thin, owing to bullfinches destroying the buds in spring. Since the 1st of June we have had 11'68 in. of rain.—D. UPHILL.

Sherborne Castle.—Fruit crops in this neighbourhood are in a very unsatisfactory condition though all kinds bloomed and set well. Apples are thin and much disfigured, and the trees are in a very unhealthy state. Pears are an average crop. Apricots are thin and very late, none yet ripe. Morello Cherries are about half a crop, but very good. Peaches and Nectarines on walls are about a third of a crop; both fruit and wood are very backward, and I fear neither will ripen this season. Plums are a complete failure. Of small fruits, Gooseberries were all cut off by frost; Currants very plentiful but much blighted; Strawberries and Raspberries very plentiful, but much injured by wet; Nuts are plentiful in some places.—W. G. PRAGNELL.

Carclew, Perran-ar-Worthal, Cornwall.—Plums are about half a crop, but I doubt if many will ripen. Early Cherries are a fair crop, Morellos third of crop. Apples are a fair crop, but the fruit seems likely to be small. Pears with us are better than usual. Of Peaches and Nectarines we have fruit enough where the trees are healthy, but as a rule the latter are much blighted. Strawberries have been an average crop, but indifferent in flavour. Gooseberries heavy and fruit fine. Currants, Red, White, and Black, also good. Raspberries good. The Apple crop in this neighbourhood is a very short one, and the trees in exposed situations are much blasted by a south-westerly gale which we had about three weeks ago. Small fruits have been generally good, but all and everything very late and out of season.—GEO. PALMER.

Powderham Castle, Exeter.—The Apricot crop here is rather above the average, but the trees have died back very much, and some are quite gone. Plums on walls are very thin, and we have none on standards. Early Cherries were a full crop, but they were much damaged by the incessant rains; Morellos are under the average, many having fallen off during the stoning period; Kentish thin. Peaches and Nectarines are average crops; the foliage suffered much from cold during the spring; I have seen many trees in this neighbourhood a total wreck from cold and aphides this season. Of Apples most varieties are very thin, but of King of the Pippins and Cellini we have abundance. Pears are under the average, but we have a good crop of Williams's Bon Chrétien both on wall and bush trees. Currants, Red and White excellent; Black suffered much from blight. Gooseberries under the average, the buds having been destroyed by small birds in winter. Raspberries very good. Strawberries abundant and very fine, both early and late; Marquis of

Brittany, Lucas, Alice Maude, and Elton Pine very good; the latter, planted on borders with different aspects, has produced a good late supply; James Veitch was very fine, but inferior in quality. Filberts and Nuts abundant; Walnuts under the average. Soil a light sandy loam.—D. C. POWELL.

Killerton, Exeter.—Apricots here are under the average; Plums on walls over the average, scarce on pyramids. Cherries under the average, and trees blighted. Peaches and Nectarines an average crop on young trees, old trees much injured. Apples very scarce generally. Pears an average crop on walls, scarce on pyramids. Small fruits such as Raspberries very fine and plentiful. Red and White Currants and Gooseberries good crop. Black Currants much blighted and scarce. Strawberries an average crop. Nuts plentiful; Walnuts scarce. All fruits very backward; Peaches and Nectarines not begun to swell after stoning.—JNO. GARLAND.

Cleavelands, Lyme Regis.—The year 1879 is one of the most fickle and unprecedented on record as far as fruit culture is concerned. The extremely rainy and foggy weather experienced for the last six or eight months has necessarily told seriously on fruit prospects. In the early part of the season all fruit trees presented unusually promising prospects. The trees being well set with blossom buds, and the season at least three weeks later than usual, hopes were entertained of a fine fruit crop. But alas! when the Apples, Pears, and Plums were in bloom, we were enveloped in fog and rain, which caused most of the blossoms to rot and decay on the trees, and the few that did set mostly dropped off afterwards, so that the crop of Apples, Pears, and Plums is much below the average in most places. Peach and Nectarine trees have also suffered, the foliage being injured, and the crop of fruits poor and deficient. Indoors they are all that could be desired, thus showing the advantage of growing such fruits under glass. Bush fruit, except Currants, are plentiful, but small, and suffering from extreme moisture. Strawberries have been plentiful, but, like most other fruits, are deficient in flavour. Walnuts are scarce. Hedge Nuts plentiful.—H. MONRO.

NORTH-WESTERN DIVISION.

Abney Hall, Cheadle.—Small fruits, such as Strawberries, Raspberries, and Red and Black Currants, have been very good crops. Strawberries during the wet time when they were fit to gather were unsatisfactory, but embracing favourable opportunities we have got a full supply; Lucas and President are the two best sorts we have. Of Black Currants I never had a better crop, and the same may be said of Red Currants. Of Raspberries we shall also have plenty, and they are very good in quality. Gooseberries, just ripening, are good, both as regards crop and quality. Pears with me are better than Apples, the latter being very thin indeed. A neighbour, who is a large grower, tells me that with him Apples are better than Pears; the Lord Grosvenor Apple is carrying fine crops. Victoria Plums and Damsons are full crops, but this season I doubt if they will ripen satisfactorily. Morello Cherries, too, are very late; we have had them ripe before this in former years, and now they are just changing colour.—ROBERT MACKILLAN.

Waterdale, St. Helen's.—Fruit crops around here generally are good, but three weeks late. Peaches and Nectarines on walls, that have received ordinary protection, are good, and also Apricots. Pears are a good crop, except some of the tender sorts. Choice sorts of Apples are very thin, but the hardier varieties, such as Greenings, Lord Suffield, Hawthornden, Manks and Keswick Codlin, are well loaded. Morello Cherries are good, but other sorts thin. Damsons I never saw better; other Plums an average crop. Gooseberries and Red Currants are fair crops. Black Currants promised to be good, but dwindled away. Raspberries are an excellent crop. Owing to the cold, damp season, Strawberries neither set nor ripened well; Sir Joseph Paxton, however, seemed to defy both wet and cold; he has far outtrivalled all the others, both as regards quality and quantity; President comes in second best.—JAMES SMITH.

Haigh Hall, Wigan.—Fruit crops in this locality are below the average. Stone fruits are never good here. The gardens are greatly exposed to the east wind, and the soil is a poor, hungry, adhesive loam which seems to retain too much moisture. Fruit trees grow well but seldom ripen their wood. The brilliant sunshine of last autumn, however, ripened the wood fairly well. All fruit trees blossomed abundantly and strongly this spring, and, being late, expectations of a good fruit crop were entertained; but the continuous low temperature, absence of sunshine, and the very heavy rainfall during the months of May, June, and July, destroyed the bright expectations of spring. Insect pests have been more numerous than usual; evidently they found a safe hiding place during the late severe winter. Apples are a very poor crop; Cellini, Lord Suffield, Keswick Codlin, Yorkshire Greening, and Small's Admirable are the best. Pears on south walls are above an average;

Easter Beurré, Beurré Diel, Marie Louise, and Glou Morceau are the best. Cherries are a failure except Morellos, which are an average crop. Of Plums we have scarcely any. Gooseberries are plentiful but small, and suffering from caterpillar, many of the bushes being quite leafless. Strawberries are plentiful but small and deficient in flavour; Duc de Malakof, Black Prince, Vicomtesse Héricart de Thury, and Eclipse are the best. Black Currants are scarce. Red Currants and Raspberries very good.—ANDREW JAMIESON.

EASTERN DIVISION.

Guntton Park, Norwich.—Apricots here are thin except where planted in very sheltered situations. Amongst Pears we have good crops of Victoria, Rivers's Early Prolific, Angelina Burdett, Pond's Seedling, Prince Englebert, and Kirke's; other varieties are very thin. Of Bigarreau Napoleon and Black Hawk Cherries we have good crops; Morellos cracked and are useless. Peaches and Nectarines are bad, and the trees are killed, or nearly so, in many places. Those under Frigi Domo set good crops, but were afterwards ruined by east winds, which commenced in the latter part of April and continued till the middle of May; every leaf blistered and turned black. Of some kinds of Apples we have heavy crops, but many sorts are fruitless. Amongst Pears we have good crops of Williams's Bon Chrétien, Winter Nelis, Josephine de Malines, Count de Lamy, Louise Bonne, Beurré Diel, Beurré Bosc, Beurré Bachelier, Glou Morceau, Passe Colmar, and Bergamot d'Esperen, but Marie Louise and other good sorts are without a single fruit. Raspberries are a fine crop. Gooseberries an average crop. Red and Black Currants abundant. Strawberries have been unusually fine, the crop heavy, and the fruit very large. On our soil, a sandy loam, the following varieties succeed best, viz., Sir Harry, Sir Joseph Paxton, Sir Charles Napier, Vicomtesse Héricart de Thury, President, Amateur, and President de la Cour; the last distinct and good. Crimson Queen, Lucas, Dr. Hogg, British Queen, and James Veitch do not crop freely on this soil. Filberts are a heavy crop. Walnuts thin and very late. 1879 will be remembered as a year of slugs, as well as of absence of sunshine, and for rain and low temperature. The slugs cleared off first sowings of Beet, French Beans, Lettuces, Cauliflowers, Brussels Sprouts, &c., completely; after using as preventives lime, soot, wood ashes, &c., all to no purpose, we were obliged to catch and kill. Our plan was to lay down Cabbage leaves over night, and send two men the first thing in the morning to pick up the slugs. One man picked up 1060 in one hour and a half. We followed up the above system for upwards of a month, all over the garden, keeping the Strawberry beds free from them in the same way; so we had comparatively no slug-eaten Strawberries, which is saying a great deal such a season as this.—W. ALLAN.

Cossey Park, Norwich.—Apricots here are a good crop. Plums an average one. Cherries good. Peaches and Nectarines thin. Apples and Pears average crops. Small fruits excellent. Nuts an average crop. Raspberries very good.—E. BURBURY.

Wolverstone Park, Ipswich.—With the exception of Strawberries and bush fruits the present season is the worst as regards fruit crops that I ever remember, for not only are the more tender kinds almost a total failure, but even Apples and Pears are unable to make any headway. The latter although plentiful enough are no larger than they generally are at the end of June, and therefore, should they even swell rapidly now, they are sure to be hard-grained and poor in quality through the severe check which they have already undergone, as no fruit suffers so quickly in this way as that of the Pear. Apples are very variable, some sorts carrying good crops, and others none at all. The best with us are Cox's Orange Pippin, Cox's Pomona, and Keswick Codlin. Cherries, although they appeared to set well, mostly dropped during the period of stoning, and the few that remained have split and rotted, owing to the excessive rainfall; but Morellos being later have escaped, and what few there are promise to be large and fine. Plums on walls are very thin indeed, but on standards there is a full crop, the best being the Victoria and Prince Englebert, the former of which is a very sure cropper. Damsons are not much grown about here, but Bullace trees are laden, so much so that their branches are quite bent down. Figs promised to be good, but the cold and wet have caused nearly all to fall; and as to Apricots, the trees in most places are mere wrecks without hope of recovery. Ours, although fruitless, are not so bad, and, if we get a fine autumn, will again cover most of the gaps. Peaches and Nectarines have improved greatly of late, but the fruit is in a very stunted condition, and covered with gum spots. Strawberries have rotted a good deal, and have lacked flavour, but Raspberries have been good and in the greatest abundance, as are also Gooseberries and Currants. The soil here is light, resting on sand and gravel, and in ordinary seasons suits all kinds of fruits, except Apples and Pears on the Quince, for which it is too dry.—J. SHEPPARD.

Hardwicke House, Bury St. Edmunds.—In general terms fruit crops are a failure, though never did they promise to be better than they did early in spring. The trees were healthy beyond the average of seasons, the bloom abundant and strong, and the season abnormally late. The latter especially almost ensured a crop of the later flowering fruits, such as Apples, and the hopes of growers ran high; but most of these have been dashed to the ground with the showers of embryo fruits until hardly any are left. The Apricots were the first to suffer, and they have suffered most. Not only are the majority of the trees bare of fruit, but the trees themselves have perished in whole or in part. Never within the range of an experience of over thirty years have I seen such cruel slaughter among the Apricot trees. The walls are terribly disfigured or wholly bare. Peaches set well, and soon after suffered semi-devouring from aphides, that came upon them like locusts, and devoured them almost as rapidly and completely. Still we have a fair sprinkling of fruit left, which may ripen if we are favoured with some forcing autumnal weather before winter. The wood is also growing fast where the aphides were summarily dealt with and destroyed at once. Plums are scarce on the whole, though here and there our standards are well laden, whilst almost everywhere the walls are bare or nearly so. We have had a good crop of early Cherries, most of which, however, were split and ruined by the rain; while Morellos are thin. Pears are specially capricious, and this unevenness of crop seems to depend far more on locality than variety. In some places and positions there is a good crop of most sorts; in others, few or none. Pears, however, will, on the whole, be the best crop of the season, a fact which it is not difficult to explain, as Apples, which flowered considerably later, have dropped and dropped until there are hardly any left. The trees have also been severely attacked with a sort of mildew or brown rust, which has given them a most stunted, unhealthy appearance. On no variety here, nor any form of tree, have we a full crop of Apples this season. One of the most curious facts in relation to this is that the Apples have not been wrecked by the frost but rather washed off by the rain; but of course this could hardly have been the case had the fruit been properly set. Walnuts are scarce, and wood Nuts and Filberts plentiful. Our bush fruits have also been a capital crop of good quality, and Strawberries a heavy crop, but the flavour was washed out by the rain and a great portion of the crop rotted. In low-lying gardens much of the crop was flooded, coated over with mud, silted up with sand, and utterly ruined—altogether the worst fruit crop of the entire series of bad years.—D. T. FISH.

Audley End, Saffron Walden.—The fruit crop in this neighbourhood is far below the average. Apricots, Peaches, and Nectarines are almost a total failure, owing, doubtless, to the wet, cold spring and summer which we have had; the early leaves of the Peaches and Nectarines became blistered and fell off, but the trees are now improving. Apples are a light crop. Pears about an average crop; fruit good. Plums and Figs light. Strawberries and small fruits are average crops. Nuts over the average.—W. HARRISON.

Shrubland Park.—This is the most disappointing season in my recollection as far as fruit culture is concerned. Apricots and Peaches on walls, though well protected, are a total failure, and the trees are rendered useless for at least a couple of years. Apples are also very scarce and the trees much blighted. Pears on walls are an average crop, but the fruit of most kinds is small; on standards they are very thin, many being without fruit; Williams's Bon Chrétien, Louise Bonne of Jersey, and Beurré d'Amanlis give the best results. Cherries don't succeed out-of-doors here. Plums on walls are a tolerable crop, and Damsons are good. Filberts are plentiful, but Walnuts are scarce. Of small fruits we have good crops. The soil in this neighbourhood is variable but the chalk formation prevails.—THOS. BLAIR.

YORKSHIRE.

Grimston Park, Tadcaster.—Apricots are an average crop, but very late; the trees have suffered much from large branches dying off suddenly; our standard variety is Moor Park. Apples of the commoner sorts were an average up to about ten days ago; since then quantities have dropped off; Cockpit, Warner's King, Yellow Ingestrie, Lord Suffield, Cox's Orange Pippin, and Beauty of Kent are our freest bearing sorts. Cherries are not quite an average crop with us, but in some places in the neighbourhood there are good crops on standards, especially where sheltered from north and east winds. May Duke is the best as a standard, though we ourselves usually get our finest Morellos from some large pyramidal shaped trees in the kitchen garden. Peaches and Nectarines are very thin, and, unless we get some good weather shortly, will, I am afraid, never ripen; Royal George, Early York, and Bellegarde are our best Peaches, and Violette Hative and Balgowan our best Nectarines. Plums are partial here; the only variety that has a good crop is Victoria, but I hear

of good crops of some of the common sorts, on standards. A few miles from here there is a sprinkling of Winesours, which are largely grown not far from this place. Pears are not an average crop, and are like everything else, very late. Jargonelle, Louise Bonne of Jersey, Doyenné d'Été, Citron des Carmes, Josephine de Malines, Brown Beurré, and Autumn Bergamot are producing good crops. Currants are excellent, also Gooseberries and Raspberries. Strawberries are the heaviest crop we ever had, but owing to the wet weather quantities have rotted before they were fully ripe. Héricart de Thury, Keen's Seedling, President, and James Veitch are our standard varieties. Amongst some newer sorts on trial we find Helena Gloëde to be a capital variety for late work; we are still picking fine fruit from it, the produce of plants planted out of 4-in. pots last August. Our soil here is a stiff loam resting on magnesian limestone, and suits most fruit trees with the exception of the finer kinds of Pears, which are apt to be gritty at the core.—H. J. CLAYTON.

Ribston Hall, Wetherby.—Apricots hereabouts are an average crop. Plums heavy on bushes, but thin on the walls. Cherries very thin. Peaches and Nectarines thin. Apples under an average. Pears very thin. Small fruits good. Strawberries were excellent, but suffered very much from wet and slugs. Medlars are very good. Fruit crops are late, and unless we have some unusually fine weather this autumn, Apples, Pears, &c., will be small and poor.—T. JONES.

Thorpe Perrow, Bedale.—Here the fruit crop is generally good, but so very late that it is doubtful whether stone fruits will ever become ripe. Apricots show no signs of ripening as yet. The Apple crop is good. Nectarines and Peaches are good. Plums bad. Of Cherries we have a moderate crop. Pears good. Bush fruits of all kinds abundant and particularly fine, as regards size, but deficient in flavour. Strawberries plentiful and very large, but wanting in quality. Nuts everywhere in this district abundant, and the same may be said of Hedge Nuts.—W. CULVERWELL.

NORTHERN DIVISION.

Shawdon, near Alnwick.—Small fruits are very abundant in most gardens in this neighbourhood, and if the weather clears up they may yet be gathered in good condition. Apples vary; they are generally abundant upon old trees, but thin upon dwarf standards. They came into blossom a month later than usual, and I have seen Apples further advanced in the middle of June than they are now. Many varieties will never come to perfection, even under the most favourable weather; the same may be said of wall fruits. I am now gathering May Duke Cherries from the same trees from which I usually gathered fruit in the early part of June. Peaches, Apricots, and Pears are fair average crops, but owing to incessant rains rust is affecting Pears very much in some gardens. Altogether the prospect of a fruit crop in this district is very unsatisfactory. Strawberries, in many places, have been lost. Of all the varieties that I have tried in this place I find President and Garibaldi the most serviceable; they stand wet, and ripen under most unfavourable weather, and they are suitable either for dessert or for preserving. President is well suited for pot culture. Some fifteen years ago I saw it exhibited at the Leeds Horticultural Show in pots in such perfection as to mark it at once to be a first-class hardy Strawberry. Until the owners of gardens in the north of England take the question of glass protection for fruit into serious consideration they cannot expect to see good Peaches and Pears upon their dessert table. It is not protection alone to spring blossoms that we want; we must assist Nature; we cannot manufacture sunshine nor ward off pouring rains; therefore glass must be more extensively used in this part of the country, if we are to be visited every now and then by a succession of such years as that which we are passing through. Of all the early Pears that come to perfection in this district Williams's Bon Chrétien is decidedly the best. The trees grow clean and healthy, the fruit large and fine, ripening in ordinary years about the first week in September. This Pear deserves to be more extensively grown in this district. Should it come to perfection this season it will be a boon indeed, for the year 1879 will long be remembered in the annals of gardening as one of the worst that we have experienced during the present century.—J. THOMSON.

Alnwick Castle.—We cannot complain that our trees in this district are without fruit; but the question is, will it ever ripen? Apricots are a good crop, and the trees are clean and healthy. Of Apples, some sorts are good, of others we have next to none; and the same may be said of Plums. Pears, with few exceptions, are a good crop. Nearly all sorts of Pears do well here. Cherries on the whole are below the average. Of Peaches, Prince of Wales and Royal George are the best. Nectarines, consisting of Pine-apple, Pit-maston Orange, and Hardwicke Seedling, are an average crop. Straw-

berries and all small fruits have been abundant. We are 180 ft. above the sea-level, and our soil is light and dry. The only protection we use in spring is two or three ply of herring-net, and if properly fixed I find it to be the best protection I have ever tried.—ALEX. INGRAM.

Seaham Hall, Durham.—Apples on some trees are a fine crop, while on others there are none at all; the best bearing sorts are the Codlin, Hawthornden, Rymer, Blenheim Orange, Golden Pippin, and Ribston. This is not a good locality for Pears except on walls; only the commoner sorts come to perfection; the Seckel, Louise Bonne of Jersey, and Jargonelle in some summers do very well, but not in seasons like the present. Of Plums, only the Victoria will fruit in perfection, although more inland from the coast they bear fairly well. Apricots succeed on walls, but no great quantity of them are grown hereabouts. Peaches and Nectarines are not as a rule grown out-of-doors. Of Strawberries, almost all sorts do well except the British Queen. Raspberries are a sure crop, and Gooseberries are the same if not pruned. Currants also bear well. Our soil consists of various kinds, mostly of a stiff character on the limestone. The land near the sea is light and good for Potatoes and all root crops; we are more troubled by the late east winds in May than by frosts.—R. DRAPER.

Raby Castle, Darlington.—Fruit prospects as far as the gardens here are concerned are without exception all that could be desired. The season is at least three weeks late, but bush fruits of all kinds are very fine and clean. Strawberries are excellent. Cherries abundant. Plums and Apricots are also good. Peaches and Nectarines are not grown here on open walls. The fruits most likely to suffer from the lateness of the season are Pears and Apples. The former are very clean and healthy, but Apples are a good deal blighted, and the fruit has dropped off a good deal; but generally speaking there is plenty left where quality is preferred to quantity, and I have no doubt if we get a hot September both Pears and Apples will finish up well. We do not shelter our trees in any way, but usually we have to use every possible means to protect fruits of all kinds from the ravages of birds, blackbirds especially; but this year we very rarely see one, and I have not yet found it necessary to spread a single net. The late severe winter I expect was beyond their endurance. We have a good number of thrushes, which are the more useful of the two, though not so melodious.—R. WESTCOTT.

Lambton Castle, Durham.—Fruit crops hereabouts suffered severely from the hard winter and late spring frosts. Apples on some trees are a good crop, especially on trees lifted and replanted in 1877; others are somewhat thin. The following sorts are the best, viz., King of the Pippins, King Apple, Large Cockpit, Oslin, Ecklinville, Braddick's Nonpareil, Lord Suffield, Manks Codlin, Sturmer, Cockle Pippin, Claygate Pearmain; they are fully a month behind, and it is questionable if they will ripen. Pears are best represented by the following sorts, viz., Jargonelle, Easter Beurré, Hacon's Incomparable, Hesse, Green Yair, Louise Bonne of Jersey, and Althorp Crassane. Apricots are a complete failure, and the trees are half killed. Peaches and Nectarines are a fairly good crop. Cherries an average crop, and fine in quality; Morellos especially are fine on pyramids, far outstripping those on walls. Plums are very thin, except Victorias, which are good. Gooseberries are abundant and fine, and the same may be said of Red and Black Currants. Strawberries are particularly plentiful; but, through the incessant rains, many have been spoiled. Small fruits have never been equalled in my experience in the county of Durham. Raspberries are also well represented. The severity of the winter has made terrible havoc amongst our shrubs, upwards of 320 large cartloads having been destroyed. Amongst them were upwards of 100 cartloads of the common Yew, which was killed outright. Our soil is a stiff, holding clay. Trees and shrubs grow late in the autumn, and are often imperfectly ripened. Lying as we do on the level of the river, thick fogs and hoar frosts are prevalent and injurious to our vegetation.—J. HUNTER.

WALES.

Cardiff Castle.—Apples here are under an average crop; the fruit is small and the trees much blighted. The varieties bearing best this year are Lord Suffield, Hawthornden, Cellini, and Ecklinville Seedling. Pears are very scarce, both on pyramids and walls; the trees are healthy and clean, and now making a superabundance of wood. Beurré Diel, Beurré Clairgeau, and Early Windsor are producing the best crops of medium-sized fruit. Apricots are an average crop, and the trees are healthy and clean. Plums are very scarce, with the exception of Victoria, which is always a pretty sure-bearing kind in most districts. Peaches and Nectarines are an average crop; the trees were much blighted in the early part of the season. Small fruits are plentiful, especially Strawberries, but they are much injured by heavy rains.—A. PETTIGREW.

Bodorgan, Llangefni.—Fruit crops with us, and as far as my information goes, are below an average, with trifling exceptions, both in quantity and quality. The season is about three weeks later than usual, and till within the last week or ten days the weather throughout the summer has been cold and wet with but little sunshine. Apples are mostly a light crop and small; in fact, unless we have a few weeks of bright hot weather, the later kinds will be of little value; and the same with Pears, which are under an average. Though late, there was a fine bloom on Apples and Pears, and, in fact, on all hardy fruits. Strawberries were a most abundant crop, the bulk of which perished from the continued wet. Other small fruits, such as Currants, Raspberries, &c., have been pretty good, though not so abundant as usual. The later kinds of Apples, requiring a warm soil and climate, such as Newtown Pippin, Court Pendu Plat, and Nonpareil, rarely do much good in this district except the season be very hot. The same with late Pears; Easter Beurré, Beurré Rance, &c., are failures. Peaches, Nectarines, and Apricots do not succeed except under glass. Morello Cherries do remarkably well, but Plums are uncertain. The climate of this part of Anglesey though mild is too much under the influence of salt winds from the sea to render hardy fruit growing on the whole successful or satisfactory. The trees are very liable to canker and get Moss-covered.—J. ELLAM.

Margam Park, Glamorganshire.—Taken as a whole this is a bad fruit year in this neighbourhood. Apples, consisting of Keswick Codlin, Manks Codlin, Hawthornden, King of the Pippins, and one or two others, are bearing fairly good crops, but as a rule they are producing only a quarter of a crop. Pears on standards are bearing but few fruit, but on walls they are plentiful. Plums are about a quarter of a crop; the Victoria is bearing fewer fruit than usual, but Damsons are bearing more than they have done for many years. Peaches with us, on open walls, are about half a crop. Apricots thin. All the above fruits are small this season. Of Cherries on standard trees we have none; sweet ones against walls are scarce, Morellos abundant. Strawberries have been an enormous crop, and the same may be said of all kinds of Currants, Raspberries, and Gooseberries. None of our fruit trees were protected in spring.—J. MUIR.

Castle Malgwyn, Cardigan.—Fruit crops hereabouts are all wonderfully late and deficient in flavour. Plums are plentiful; Green Gages, Victorias, Orleans, Jefferson, Coe's Golden Drop, and Magnum Bonum succeed well here. Of Cherries we have very few. Peaches are a fair average crop, and though the leaves were blistered very much in the spring, the trees are now recovering. Apples are few and small; King of the Pippins, Lord Suffield, and Hawthornden are bearing the best crops; most sorts of Apples succeed well here. Pears are under the average; they do not succeed well in this district as pyramids or espaliers; those that generally yield the best crops on walls are Jargonelle, Williams's Bon Chrétien, Summer Begamot, Autumn Bergamot, Glou Morceau, Comte de Lamy, and a few others. Of Currants we have very few. Raspberries and Gooseberries are average crops. Strawberries have been plentiful, especially Newton Seedling, from which I am still gathering. Nuts are abundant, but Filberts are late. I never remember seeing more Nuts on hedgerows than we have this year. The soil hereabouts is chiefly heavy, but with care excellent crops of most things may be grown on it.—HENRY HOWARD.

SCOTLAND.

Drumlanrig, Dumfriesshire.—All fruit trees and bushes could scarcely have given greater promise than they did in spring of bearing abundant crops. They were literally smothered with fine healthy blossom buds, no doubt owing to the fine warm autumn of last year; but the extraordinary cold, wet, and want of sunshine which have characterised this season all along have very much altered matters. Apples are an average crop, but so very late that, unless the next two months be exceptionally warm, they will scarcely be worth gathering. The same remarks apply to Pears, which are a small crop. Plums on walls are a poor crop, with the exception of the never-failing Victoria. Strawberries have been very abundant, but flavourless. Black and Red Currants, as well as Raspberries and Gooseberries, are abundant, but deficient in flavour. The lowness of the temperature and constant rains have been most remarkable. The highest temperature registered in July was 71°, the mean of the highest readings being only a fraction over 60°, and June was still colder. On August 10 the temperature fell to 34° in a sparrow box 4 ft. from the Grass, and very frequently it has ranged from 36° to 40° during the last three months.—D. THOMSON.

Tynningham, East Lothian.—Fruits which did not set well here were Apples and Strawberries. The former either rotted in the blossom or their stalks were eaten off by a maggot. The Straw-

berries were cut up by a fierce storm of wind, which scathed the later flowers as if by fire. Notwithstanding this, however, we have had good crops. President suffered most. Vicomtesse Héricart de Thury, Sir J. Paxton, and John Powell are amongst our best sorts. Lucas, Helena Glòde, and Loxford Hall Seedling are good croppers. President de la Cour, I fancy, would be worth growing on dry soils. Pioneer apparently requires a warmer climate than ours. The Apples which have set good crops are—Lord Suffield, not so good as it generally is; Keswick Codlin, the best crop of the year; Hawthornden, Stirling Castle, Cox's Pomona, and King of Pippins. Dessert sorts are almost a failure. Of Pears, Winter Nelis carries the largest crop; Bon Chrétien, Marie Louise, Van Mons Leon le Clerc, Napoleon, Easter Beurré, and Glou Morceau are also producing good crops. Apricots are good. All sorts of Plums are next to a failure. It is doubtful whether any of these Apples, Pears, Apricots, or Plums will ever become fully grown. Everything depends on the weather. Cherries have all set a large crop, but so far they have cracked and rotted on the trees. Of all kinds of bush fruits there are grand crops. Gooseberries are bending the branches to the ground by their weight. Raspberries I have never seen better. Currants also are extra crops, but they are suffering through the wet. Our trees have not been protected this year at all. All kinds of usually protected trees were so late in opening their flowers that we dispensed with protection. Herring-nets are the only kind of protection used here. I have much more faith in getting the young wood thoroughly well ripened in the summer and autumn as a means of securing a crop of fruit than in trying to save imperfectly developed flowers in the spring.—R. P. BROTHERSTON.

Culzean Castle, Ayrshire.—The fruit crop in this neighbourhood is in general very varied. In some gardens Apples and Pears are quite a failure, while in others they are an average crop. Gooseberries and Currants are very abundant, the bushes quite weighed to the ground with the fruit. Strawberries have been very poor, the half of the fruit not coming to maturity. Plums are an average crop. Cherries, except Morellos, have been very poor here, but in some places they have been good crops. The following fruit trees are bearing crops here this year:—Plums—Victoria, Kirke's, Goliath, and Jefferson; Pears—Williams's Bon Chrétien; Apples—Lord Suffield, Paradise Pippin, Cellini, and Ecklinville Seedling. The garden here is well sheltered from east and north winds. The soil is heavy on clay.—DAVID MURRAY.

Gordon Castle, Fochabers, Banffshire.—Strawberries hereabouts and all bush fruits are abundant. Apples are also good. Pears a fair crop. Plums good, some sorts over the average. Peaches on some trees good, on others bad; Apricots set well, but both trees and fruit are badly blighted through want of sun-heat and a continuation of cold east winds.—JOHN WEBSTER.

Bothwell Castle, near Paisley.—As a whole, the fruit crop in Lanarkshire is decidedly below an average. Small fruits with us are very abundant but very late, Gooseberries being still unripe; they are grown largely in this neighbourhood for the Glasgow market, and generally sold by auction; this year the prices obtained are very low, but I think that must be owing to the lateness of the crop, and general depression in trade, and not to any deficiency as to quantity. The Apple and Pear crops are very deficient; the Stirling Castle and Lord Suffield Apples give very satisfactory results here, and I believe I state very nearly the truth when I say that in the Glasgow nurseries more of these two sorts are sold than of all other kinds put together. The Peach crops are abundant but very late, and unless the favourable weather that we have enjoyed for the last two or three days continues for a few weeks they are not likely to ripen satisfactorily; the sorts which I grow on the open walls are Acton Scott, Royal George, and Red Magdalene; when in flower they are protected from frost at night by scrim cloth. The subsoil of this district is generally clay. Strawberries on stiff soils have not done well this year; the Grove End Scarlet is an exception, and we still consider it the best for preserving.—ANDREW TURNBULL.

Blythswood, Renfrewshire.—Fruit crops in this district are not at all good. Apricots, Peaches, and Nectarines, protected in spring with spruce branches and on flued walls, have failed to carry even an average crop. Apples are also thin, and the fruit will be small in size. Even Lord Suffield and Stirling Castle are not so good as usual this season. Pears are an average crop. Cherries fairly good; Morellos have set well. Plums not an average crop. Strawberries were abundant, and would have been fine had the weather proved favourable. Garibaldi and Reeve's Eclipse have withstood the wet weather best. Of Raspberries we have very fine crops. Gooseberries and all the varieties of Currants are plentiful, and fine in quality.—J. METHREN.

Glamis Castle, Forfarshire.—Fruit crops in this quarter are scarcely up to the average, with the exception of small fruits, which are very abundant. Gooseberries, Raspberries, and Currants

are very abundant and good in quality. Strawberries here bloomed and set well, but owing to the cold wet season not more than half of them swelled; our standard varieties are Eclipse, Elton Pine, Keen's Seedling, Vicomtesse Héricart de Thury, and Wonderful. Apples and Pears made a fine show in spring, and their blossoms were strong, healthy, and late, escaping the late spring frosts, but like the Strawberry crop more than two-thirds of the crop have dropped after being well set. Among Apples, Codlins, Pippins, Ecklinville Seedling and similar kinds do well in good seasons. Amongst Pears Bergamots, Beurrés, Williams's Bon Chrétien, Jargonelle, Louise Bonne of Jersey, Marie Louise, Passe Colmar, Thompson's, and Vicar of Winkfield do best. Plums are quite an average crop, though we had to thin Victorias and Goliaths. It is seldom the Plum crop fails here. Our favourites are Coe's Golden Drop, Goliath, Green Gage, Jefferson, Kirke's Magnum Bonum, Orleans, Prince of Wales, and Victoria. Apricots are an average crop; Brussels, Moor Park, and Shipley's are principally what we grow. Our soil is chiefly a good light loam.—G. JOHNSTON.

Dupplin Castle, Perth.—Apricots are a good crop, but late. Plums scarce, and Apples and Pears are also thin. With so much rain and little sunshine Apples did not set well, and those that did are swelling very irregularly. Fruit trees in general are healthy and free from vermin. With the exception of Cherries, which are badly infested with black fly, small fruits are average crops, but Strawberries have been much spoiled through the wet.—J. BROWNING.

Ardross Castle, Ross-shire.—Small fruits hereabouts are good, except Strawberries, which are not nearly so good as they usually are. Apples are an average crop, but so late as to preclude the hope of their being of good size or quality. Pears are a failure. Plums below an average.—R. MASSIE.

Cawdor Castle, Nairn.—Apricots covered and Peaches uncovered had to be thinned to the extent of two-thirds or so, but they are so very late that it is questionable if they will ripen at all. Strawberries are good; Garibaldi, President, and Elton are the sorts grown. Gooseberries are above the average as regards quantity, but none are yet ripe. Raspberries are abundant and beginning to colour. Currants are plentiful but late and small. Apples are abundant on some trees, on others scarcely any; Lord Suffield, Stirling Castle, Oslin, and some others are full crops, but small. Cherries and Plums, especially the former, are very thin. Our soil, a light and dark on a gravelly subsoil.—JAMES MAITLAND.

IRELAND.

Fruit Crops in King's County.—Apples are very scarce throughout the district, and they are daily dropping from the trees; the only sort which is doing well is the New Hawthornden, a variety which seldom misses bearing a crop here on our heavy clay. Pears and Plums are an average crop, but late; it is doubtful, indeed, whether or not they will ripen. Peaches on open walls are in a pitiable plight; the trees are like so many dead sticks with a bunch of green leaves on their tops. Cherries are an average crop and fine. Red and White Currants are abundant, but Black ones are almost a failure; the trees were badly blighted in the spring, and dropped both foliage and fruit. Raspberries and Strawberries have been very abundant; I never before saw such crops of these as we have had here, but, owing to the continual downpour of rain, they were deficient as regards flavour. Nuts are very promising. Figs are scarcely in leaf yet.—T. J. HART, *Birr Castle Gardens, Parsonstown.*

Powerscourt, Enniskerry, Wicklow.—Fruit crops in this district, with the exception of small fruit, are a long way under the average. Never in my experience have I seen a more promising show of blossoms with a worse result. With us Pear trees on walls seem to carry something approaching a satisfactory crop, but in the open garden they are almost a failure. Apples are rather better, but nothing near what we were led to expect from the beautiful late display of blossom with which they were furnished.—W. FORBES.

Headfort, Co. Meath.—I have but a poor account to give of the fruit crops in this neighbourhood this year. In the spring I expected to have had an unusually good crop of all kinds of fruit, for all our trees were covered with blossom. Peaches and Nectarines set their fruit in thousands. Apples and Pears were a grand sight when in bloom, but the hail storms which we had in May completely riddled them; now Peaches, Nectarines, Apples, and Pears are far below the average, and the fruit is very small. Strawberries plentiful, but could not ripen, there being so much rain and no sunshine. Raspberries are a fair crop. Red Currants plentiful, but small. Gooseberries the same, and not ripe yet. Of Black Currants we have very few. Cherries are an average crop, with the exception of Morellos, which have nearly all fallen. In fact, it is as bad a fruit year as it possibly could be.—J. CLEWS.

GARDEN DESTROYERS.

THE VAPOURER MOTH.

(ORGYIA ANTIQUA.)

THE caterpillars of this common little moth are sometimes very abundant, and are then very destructive to various plants in gardens, shrubberies, and orchards. Though they do not confine their attentions to any particular kind of plant, they are especially fond of fruit trees, Limes, and Roses. There is not, unfortunately, much that can be done towards destroying this insect; the eggs are not sufficiently conspicuous to make it worth while to search for them. The caterpillars are best destroyed by picking them off the plants they are feeding on, or spreading a large sheet or cloth under the trees or bushes and shaking or knocking the caterpillars into it, when they can be easily collected and killed by pouring boiling water over them. Search should also be made for the female moths, which differ very much from the males in general appearance and habits; having no wings, or only the smallest rudiments of them, they are quite incapable of flight, and their movements being very sluggish, they are very easily caught when found; but as they are of a dull greyish-brown colour, it is not very easy to detect them.

The males can be caught in a common butterfly-net; they may frequently be found flitting about even in the brightest sunshine in search of the females. Of course the earlier in the season the moths can be caught the better, as it is very desirable that as many as possible should be destroyed before they have had opportunities of

*Orgyia antiqua* (male).*Orgyia antiqua* (female).*Orgyia antiqua* (caterpillar).

pairing; and if a few females can be killed before they have laid their eggs, the number of caterpillars will be much less. There are several broods of this insect during the summer and autumn. The eggs laid by the females of the last brood do not hatch until the following May, and the first brood of moths make their appearance in June; and from that time to the end of September or the beginning of October there are several broods. The moths are most common in August and September. The caterpillars are exceedingly curious and beautiful, being ornamented with tufts of hair, which vary very much in appearance on different parts of their bodies. When fully grown they spin round themselves a cocoon of silk mixed with hairs, within which they become chrysalides. This insect belongs to the family Arctiidae, and may easily be distinguished from any other member of the family by its rather peculiar form and colouring. The males measure about $1\frac{1}{2}$ in. across the wings when they are fully expanded. Their general colour is reddish-brown. The fore wings are short and broad, and are marked with three irregular transverse darker bands; the exterior one is nearly straight, and is placed

near the margin; the middle band nearly meets it at the lower margin of the wings. At this point, between the two bands, is a somewhat crescent-shaped white spot; the lower wings are of a reddish-yellow colour, and are larger in proportion to the upper ones than is usually the case. The antennae are large and very deeply toothed. The females are about $\frac{1}{2}$ in. long and very stout, and of a greyish-brown colour; they have only the most rudimentary wings; they seldom move far from the cocoon from which they have emerged. The caterpillars, when fully grown, are about $1\frac{1}{2}$ in. long; they vary very much in general colour from blackish to pale greyish-blue and white. Their bodies consist of twelve joints, of which the first three, the sixth, seventh, eighth, ninth, and last each have a pair of legs; on each joint are several tubercles, from each of which springs a tuft of long greyish hairs, in addition to which, on either side of the first joint, is a tuft of long hairs directed forwards; these hairs vary considerably in length, and are much thickened at the tips. The fifth joint is furnished with two similar tufts, one on either side; and the eleventh joint is provided with one of the same description on the centre of the back inclined backwards. The fourth and following three joints have on the back of each a thick short brush of hairs, which are all of the same length and generally white or yellowish in colour, but sometimes they are grey, reddish, or nearly black; between each of the brushes is a transverse black line on the back. G. S. S.

ANSWERS TO CORRESPONDENTS.

Palms for the Open Air.—"F. C." (p. 138) may safely venture to plant *Chamerops Fortunei* out of doors in any part of Berkshire, or, indeed, any part of England, for it is perfectly hardy, having withstood the late severe winter with us in a very exposed spot without the slightest protection of any kind whatever. Soil and situation have a good deal to do with the endurance of plants, but this Palm appears to do almost equally well in sunshine or shade, provided it can be accommodated with a loose, moist root-run, in which it greatly delights. Before planting, therefore, I should advise for the ground to be well broken up, and to have a good dressing of rotten manure, or leaf-mould, or both, worked in towards the bottom, on which the plant will be able to feed after it becomes established. The leaves being of large size, and on that account holding a good deal of wind, it is necessary to choose a sheltered site to grow it in, as otherwise it is almost sure to get knocked about and disfigured, which detracts much from its beauty. The present season can hardly be regarded as favourable for turning it out, as before it gets fairly hold of the ground winter will be upon us, and it can scarcely be expected to stand so well under such circumstances. If planted in the spring the whole growth will be made outside, where the leaves not only come stouter, but get more mature, in which condition they will bear more cold and frost without suffering. *Corypha australis* is too tender to stand out without a covering of some kind, and even then it is not satisfactory; but the Metake Bamboo is quite hardy, and is a capital plant for shrubby borders, or to place near the margins of ponds or lakes, where, from its reed-like character, it looks quite at home.—S. D.

Salt and Worms (p. 138). The readiest way to get rid of these on lawns without damaging the grass is to have a large tub or other vessel and put into it a quantity of unslaked lime, say an eighth or so of what it will hold, and then fill it up with water, which, after it has been standing a short time, may then be drawn off and used. The best time to apply it is immediately after heavy rains in the autumn or spring, or when from the great number of earth casts it can be seen the worms are near the surface where they can be reached quickly by the liquid, which, as soon as it touches them, makes them wriggle out of the ground on to the surface, when they may quickly be swept up and destroyed. If a tap or plug is put in the tub just above the lime, the water may be drawn off clear and the vessel filled again before being finally emptied to make a fresh lot, as the second or even third brewing will be quite strong enough to do the work required. An ordinary garden watering pot with a moderately coarse rose answers well to pour the liquid on with, the point being to distribute it regularly over every part. Corrosive sublimate is likewise used, but this requires great care in handling and should only be applied at the rate of 1 oz. to every 50 gallons of water.—S. D.

Salvia patens Shedding its Buds (p. 162).—This is said to be due to poverty of soil. In my garden at Eton I gave up growing it owing to this habit, which *Lupinus polyphyllus* also had there. The soil there was poor, and robbed by the roots of Elm trees. In my garden here, where the soil is strong and retentive, I grow both plants without any similar trouble.—C. W. DOD, *Edge, Malpas*.

Chimonanthus fragrans.—When should this be pruned? During the last two years it has flowered but little, and I fancy it ought to be pruned at this time of year.—M. P. [The pruning had better be done after the fall of the leaves in autumn.]

Peach Shoots.—F. G.—The Peach shoots sent simply illustrate the effects of the remarkable season which we have experienced. Numerous allusions to trees injured in a similar way will be found in the fruit reports published in our present issue.

Names of Plants.—Mrs. M.—1, *Cerastium Biebersteini*; 2, *Sedum album*; 3, *Gentiana bavarica*. S. J.—1, *Ligustrum sinense*; 2, *Liatris spicata*; 3, *Hemerocallis disticha*, fl. pl.; 4, *Alstromeria haemantha*. W. D. 1, *Centradenia rosea*; 2, *Monochaetum cusiferum*. Decm. 1, *Platyodon grandiflorum*; 2, *Campanula pusilla*; 3, *Salvia Grahami*. G. J.—1, *Verbascum Blattaria*; 2, *Tropaeolum tuberosum*. New Court.—*Pancratium speciosum*. E. James. One of the "Sugar" Peas, the pods of which are eatable. G. L.—1, *Potentilla fruticosa*; 2, *Liatris spicata*; 3, *Potentilla*, probably *colorata*; 4, *Anemone rivularis*; 5, *Sedum Aizoon*; 6, *Oenothera pumila*; 7, a species of *Inula*. Enquirer 1, *Agapanthus umbellatus*; 2, *Sonchus laciniatus*; 3, *Verbena venosa*; 4, apparently *Tropaeolum peregrinum*. J. G. B. 1, *Asplenium bulbiferum*; 2, *Davallia bullata*; 3, *Trichomanes radicans*; 4, *Gymnogramma calomelanos*; 5, *Adiantum caudatum*. Alpha.—*Batatas paniculata*. M. F. We cannot undertake to name varieties of *Verbena*. Hortus.—1, *Lilium testaceum*; 2, *L. superbum*; 3, apparently *L. Humboldtii*, but you had better send leaves in order to determine it accurately.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

THE INDOOR GARDEN.

THE SAW FERNS.

(*NEPHROLEPIS*.)

THESE are called Saw Ferns from the serrated arrangement of their pinnae. They include several very ornamental species and varieties, and possess a peculiar type of foliage, which they bear in greater profusion than any other class of Ferns. As regards distribution, they are chiefly confined to the Tropics of both the New and Old Worlds, though one species has a much wider range, being found in both North India and New Zealand. All the species have simply pinnate fronds, with their pinnae jointed to the rachis, and numerous slender aerial rhizomes proceeding from the bases of the stipes; they, however, differ greatly from each other in the size and texture of their fronds. The spores of some of the species produce plants freely, while those of others rarely germinate. They, however, all produce offsets from the nodes of the rhizomes, which afford a continual supply. These rhizomes ought to remain attached to the parent plant until the offsets have formed roots and fronds, as the rhizomes of these Ferns never produce offsets after they are detached. A few of the species bear tubers similar to small Potatoes, which, when mature, send forth fronds, thus affording another mode of propagation. These Ferns have hair-like roots, and prefer a spongy soil free from lumps, such as a mixture of sandy peat, light loam, and leaf-mould in equal proportions, passed through a coarse sieve. Good drainage is essential, and they (the evergreen kinds, at least) should never be allowed to become dry, or they will shed their pinnae. They delight in a moist heat when growing, and require very little root room. The genus comprises ten acknowledged species and numerous varieties, which supply us with some of our most elegant stove Ferns; the dwarfier kinds are eminently adapted for decorative purposes, and the larger-growing sorts make noble showy specimens. Those indicating the principal characteristics of the family and best worth cultivation will be found in the subjoined enumeration:—

Nephrolepis acuta, which is known also as *N. ensifolia*, is a robust erect-growing species, and the tallest of the series; the fronds are from 2 ft. to 5 ft. in length, and from 6 in. to 12 in. in breadth at the widest part, tapering gradually to both extremities. The rachis when young is clothed with a greenish fur, which afterwards becomes dark brown. The pinnae, which are inserted their own width apart from each other on the rachis, are linear lanceolate in outline with acuminate points; they are also wavy and of a dull green colour. The fertile pinnae occupy the upper portion only of the fronds, and the sori are arranged in a single row between the margin and midrib. This species thrives well in the shade, and if allowed surface room quickly forms a dense mass of green foliage. *N. hirsutula*, a pleasing variety of this covered with a woolly tomentum, makes a more suitable pot plant than the type. The species itself is common to the tropics of both hemispheres.

N. exaltata.—This is connected by a series of intermediate links with *N. acuta*, from which it differs mainly in size, form, and texture of its pinnae. It is an erect-growing species, with fronds from 2 ft. to 4 ft. in length, and from 2 in. to 5 in. in breadth. The pinnae—which are cuneate, oblong in outline, coriaceous in texture, and of a shining green—have a pair of auricles at their base which bring each pinna on the same side in contact; they gradually diminish in size towards both extremities of the fronds, the upper ones becoming linear and the lower ones triangular. One of the most distinct varieties of this species, *N. Barteri*, was discovered by Mr. Barter in the Niger Expedition. It has drooping fronds, with broad triangular falcate pinnae, which are bluish-green in colour, and

frequently ornamented with a row of white dots within the margin on the upper surface. This variety is confined to West Africa, but the type has the same distribution as *N. acuta*.

N. cordifolia.—This is met with more frequently in collections than any of the other species, probably owing to its prolific rhizomes. Its fronds grow from 1 ft. to 3 ft. in length and from 1 in. to 2 in. in breadth; they are linear in outline and taper abruptly towards each extremity. The pinnae are oblong, slightly falcate, and overlap each other at the edges; they also have a pair of unequal-sized auricles at their bases, which extend beyond the rachis on the under side and overlap the auricles of the opposite pinnae; the fertile pinnae, which in this species occupy three-fourths of the frond from the point downwards, are regularly crenate, while the barren pinnae are serrate. The sori are large and kidney-shaped, and the rachis, being very flexible, causes the fronds to droop both sideways and backwards. *N. tuberosa*, a variety of this species, differs from the type only in bearing tubers; the type and variety are cosmopolitan in the tropics.

N. pectinata.—This, at once the most delicate and beautiful of the genus, deserves to be more extensively cultivated than it is. In structure it resembles *N. cordifolia*, but it is much smaller and produces a greater abundance of foliage. Its fronds, which are of a uniform width throughout, and from about 12 in. to 18 in. in length, are not more than 1 in. in breadth; they are furnished with from fifty to sixty pairs of pinnae of a light green colour. It is one of the best for cutting, and makes an excellent basket plant, its slender drooping fronds and innumerable thread-like rhizomes producing a fine effect. It is a native of Tropical America.

N. davallioides.—In dimensions this resembles *N. acuta*, from which it is difficult to distinguish in a young state; but when both arrive at maturity *N. davallioides* may be recognised by the dimorphic character of its fertile fronds. These fronds terminate abruptly; the uppermost eight or ten pairs of pinnae are pinnatifid and recurved, and bear a sorus upon each lobe; all the barren pinnae are lanceolate and entire, and diminish in size towards the points of the barren fronds. It is a Fern which has a majestic appearance in a mature state; it is one of the best for pot culture, and may be used for similar purposes as *N. acuta*. This species is a native of Java. The crested variety, named *N. davallioides furcata*, is most likely a sport of a variety of this species, as, apart from its abnormal character, it differs materially from the type in structure; its fronds, which grow to a length of from 2 ft. to 3 ft., are lanceolate in outline, and are gracefully arched; the pinnae are from once to four times forked, mostly channelled, and in the fertile pinnae the divisions are more numerous; the sori are quite round, and are situated midway between the margin and the midrib of each division. The whole plant is of a light, shining green, and it grows luxuriantly. It is a valuable addition to our decorative Ferns, and one which should be in every collection.

N. philippinensis.—This is probably a geographical variety of *N. cordifolia*, but very distinct in character from that species. Its fronds, which rarely exceed 15 in. in length, are very rigid, and are furnished with numerous linear, oblong, dull, bluish-green pinnae. A peculiarity of this Fern is a tendency of the upper pinnae to point downwards, like the legs of compasses. It produces offsets freely, and is most suitable for small collections. It is a native of the Philippines.

N. Duffi.—This remarkable monstrosity is a sport of some unknown species. Those parts which approach the normal state closely resemble *N. trichomanoides*, a species not in cultivation. It grows from 9 in. to 15 in. in height. The primary rachis is divided into two or three secondary ones near the base, each of which is again divided near the points into numerous divisions, which separately resemble an entire frond of *Asplenium viride*. The pinnae vary in form from round to oblong, and all the upper ones are deeply crenelled. It forms a compact and very ornamental plant. It thrives best in a shallow pan with the soil raised in the centre, and it requires full exposure to light. It is a native of Duke of York Island.

N. pluma.—This differs from all the preceding in being deciduous. It forms in the course of its growing season several roundish-oblong tubers, which, being of a watery character, require to be kept moist during the resting period, or they shrivel and lose their vitality. The fronds are linear, recurved, and very unequal in size, varying as much as from 1 ft. to 3 ft. in length, and from 2 in. to 4 in. in breadth, on the same plant. The shorter ones stand upright, while the longer ones, having a flexuous rachis, droop gracefully all round, a circumstance which gives the whole plant a feathery appearance. The pinnae, which are of light green, are linear-falcate in shape, and regularly crenelled, with a conspicuous kidney-shaped sorus on each lobe. It seems to be quite at home planted either in the ends of hollow Fern stems, or in the crevices of walls; it is,

however, best adapted for hanging baskets, where its many attractions can be seen to advantage. It is a native of Madagascar and Johanna Island.

C. M.

WINTER AND SPRING FLOWERING ANNUALS.

EVERY one who has a greenhouse likes to have it as cheerful looking as possible during the winter and spring, and no plants aid more at these seasons in rendering such structures gay than a few pots of well grown annuals. Although not the showiest, the favourite amongst these is

Mignonette, which is always welcome, and doubly so during the dull seasons of the year, when there are so few sweet-scented flowers to gratify us in that respect by their presence. Mignonette, however, is by no means an easy plant to grow, for though it is almost a weed out of doors, it is somewhat "miffy" in pots, and amateurs and others who have not had much experience in cultivating it in that way often experience some amount of difficulty in getting it into a satisfactory condition. The most frequent causes of failure are insufficient drainage, and as a natural result too much wet at the roots, from which no plants suffer so quickly, and from whose ill effects none recover more slowly, than that just named. This is more particularly the case during its earlier stages, a time when great care is required to keep it healthy and growing. The finest pots of it I ever saw, that is for the size they were in, were prepared as follows: First of all, they were well drained by having $\frac{1}{2}$ in. or so of finely broken crocks placed in the bottom, over the large one covering the hole, and on the crocks a sprinkling of Sphagnum for the purpose of keeping them clear. Next came a pinch of soot and pigeon manure, after which the pots were filled firmly with rich fibry loam, and the seed sown thinly over the surface, and slightly covered with finely sifted soil. The advantage in placing such highly stimulating manures low down, is that the plants do not feel their influence till they require such help, which is when they have filled the pots with roots, and are coming into flower; and as they do not want much water in winter, assistance cannot be afforded them very frequently in a liquid form, but when the soil is dry it should always be given. By shifting the plants and affording plenty of root room, gigantic specimens may be produced; but although these are fine in their way, they are not so useful for general decorative purposes as those of a moderate size; 6-in. or 8-in. pots are quite large enough to contain from three to five plants each, which if stopped once, and the laterals trained by being staked out, form fine masses, that come in admirably for window embellishment, or for furnishing a quantity of bloom for cutting. For the next two months or so the best place to grow Mignonette is a cold frame, where the lights can be withdrawn by day and tilted by night, so as to give plenty of air to prevent it from drawing up weakly. In winter no situation suits so well as a shelf near the glass, either at the ends of the house or up in the roof, where there is free ventilation, it being very impatient of much confinement. *Reseda odorata*, the common kind of Mignonette, is now eclipsed by several new varieties, the best of which is Mile's Hybrid Spiral, that produces spikes of bloom of great length, and is of a fine strong robust habit, which renders it very suitable for pot culture.

Browallias.—Although not very showy, Browallias are valuable for winter work, their light sprays of lovely blue flowers being a great ornament to any bouquet. Except the beautiful little Forget-me-not (*Myosotis dissitiflora*), I know of nothing so choice to work in with Gardenias, Eucharis, double white Primulas, or other pale blooms that require a bit of colour to set them off, and were they not worth growing for many other uses, they would be quite so for the above-named purpose alone. The most floriferous is *B. elata*, but the more recent introduction, *B. Roezli*, has larger and finer blossoms, and possesses the best habit for pots. For cutting, however, I prefer the old sort, and it has the additional recommendation of requiring less heat, but to do either well they should not be kept in a lower temperature than from 50° to 55°, or they quickly show signs of distress. To get them strong before winter sets in they cannot now be sown too soon, and to prevent any disturbance or check to their progress when up, the best way is to put three small pinches of seed triangularly close to the sides of some 3-in. pots, that the plants when singled out may be shifted on into others as soon as they require more room. The object in growing them in that way is that being of spare, fragile habit they look best together, and make a finer display should they be wanted for vases, for table decoration, or the embellishment of rooms. A light, rich, vegetable soil consisting of about three parts of leaf-mould to one of fibry loam, suits well to pot them in, as in that their roots ramify freely, and being loose and open it admits of quick drainage, and allows them to be well plied with liquid manure, which enables them to keep up a succession of flowers. Any ordinary frame where they can be shut up early and pushed on by being syringed will answer for the next two

months, after which a temperate house will meet their requirements best for the winter.

Schizanthus.—The variety of these known as *S. papilionaceus* always attracts much notice on account of the great resemblance their many spotted flowers bear to beautiful butterflies with outspread wings, and as they are of very easy cultivation and last a considerable length of time in bloom, I can strongly recommend them to any one who wishes to keep up a rich display in the spring. A packet of seed will yield plants that vary very much in the colour of their blossoms, for, like Balsams, Cinerarias, &c., they are very sportive in their character, and to keep up a fine strain the best only should be selected and saved. *S. retusus* Grahami likewise yields very handsome flowers, in form greatly resembling some of the choice Orchids, many of which they quite equal in their rich markings. Where it is desired to have them in early, seed should be sown at once, and again for succession at the turn of the year. So serviceable are they for general decorative purposes that we are seldom without them, but have them in all stages, as even in the height of summer they are among the best plants for keeping a house gay that any one can cultivate. Like most annuals they delight in a rich, moist soil, and require abundant supplies of water and liquid manure when flowering.

Rhodanthes.—These are never seen in anything like the state of perfection, or are half so charming to look at, as when grown in pots, their delicate pink, satiny blooms requiring to be elevated to show them off to advantage. They are, therefore, admirably adapted for window boxes or shelves, where they are brought more on a level with the eye, and are very telling in groups of Primulas, Tulips, Hyacinths, and other forced bulbs. The best way to manage them is to sow in pans filled with fine soil, which should then be kept close under glass till they germinate. As soon as they are large enough to handle prick them off into 3-in. pots, placing five or six equidistant in each, after which set them in a close frame and shade for a few days to give them a start. A light, airy shelf in a warm pit or house is the best place to winter them, they being very susceptible of damp, and therefore in watering them care should be taken not to water them overhead or keep them too wet at the roots. At the turn of the year when there is more life and movement in vegetation they will bear their final shift into 6-in. pots, and from that time on it is necessary to keep them growing without check till they attain the desired size, the tendency of *Rhodanthes* being to produce bloom prematurely as soon as the sun has much power, and causes the shoots to become hardened. In a young state they are very subject to green fly, for which they must be watched and gently fumigated directly the insects appear, or they speedily do irreparable injury. I have tried various soils and find peat or leaf-mould and loam, with a sprinkling of rotten manure, to be the best for potting, in which, if kept open by sand, they grow away freely.

Stocks of the Ten-week kinds form admirable pot plants, and are largely grown in that way to supply the London market, and yet it is very remarkable that they are seldom seen except in beds and borders in private gardens. For amateurs and others who like to have gay windows and have not much convenience by way of glass to keep up a supply of plants, these Ten-week Stocks come in particularly handy, as any frame from which frost is excluded suits them perfectly, if they only get plenty of light and air to prevent them drawing or becoming infested with mildew, to which their leaves are particularly subject. As it makes its appearance on the under sides the only way to stop it is to hold the plant sideways and dust the parts affected with sulphur, which destroys the parasite at once. The proper time to sow for winter is the end of July, but good plants may yet be grown if the seed is got in at once.

Godetias.—Last spring I saw some fine specimens of *Godetia*, with which I was much struck, for though common enough in borders during the summer, they were new to me at that early season, and at once showed what a desirable acquisition they are for the greenhouse. The most beautiful is *G. Lady Albemarle*, that has flowers as large as some of the kinds of Hibiscus, with richly coloured petals, the inner part of which is as glossy looking as satin. It is seldom that plants bearing such large blooms are very free, but the *Godetias* are an exception, for more floriferous plants cannot be, and as their habit of growth is so close and compact, they are well adapted for pots. Being very hardy, they do best plunged out till late in the autumn, when they can be taken in and wintered in any cold frame.

Nemophila insignis should not be forgotten, as it is quite unapproachable in the fine shade of blue of its flowers, and though old, there is nothing equal to it for suspending in small baskets, or for use as a front edging in stands, where its trailing branches soon droop over and cover the sides. Many others might be mentioned, but those above enumerated are the most desirable, and with them greenhouses may be rendered much more attractive than they usually are during the dull months of the year. S. D.

LOW'S GOLDEN-SEPALLED CYMBIDIUM.

(C. LOWIANUM.)

In habit this plant resembles *C. giganteum*, and was first described by Reichenbach as a variety of that species, from which, however, it differs much both from a botanist's and from a cultivator's point of view. Well-grown plants of it are 2 ft. or more in height, and have gracefully arching, dark green leaves distinctly marked with yellowish veins; the flower spikes, which are nearly as long as the leaves, bear from ten to fifteen flowers, if not even more, each flower, as shown in our sketch, being from 3 in. to 4 in. in diameter. Their colour is novel and therein lies their charm; the sepals and petals are golden green and the lip whitish, with a large blotch of bright velvety red, almost approaching crimson indeed, and most effective in brightening up the whole flower. The plant is vigorous and grows well in a fresh open compost of peat, Sphagnum, fibrous loam, and crocks. It also enjoys a liberal supply of root moisture when growing. Not only is it one of the handsomest of Cymbidiums, but it stands out clearly as one of the most distinctly beautiful of recently-introduced Orchids. It is Indian, perhaps Burmese. F. W. B.

IMPROVED VARIETIES OF CHINESE PRIMULA.

Few plants contribute so much to render greenhouses and the windows of sitting rooms gay and attractive during the dull season of the year as the various varieties of the Chinese Primrose. This Primrose has been cultivated in this country ever since 1820. Since that time, however, it has undergone marvellous improvements, most of which have been effected during the last few years, and this is still progressing, the productions of each succeeding season being in advance of those of its predecessor. To show as far as possible by what means this is being accomplished, and to point out what is considered to be a successful method of treating these plants, will be the object of these remarks.

Culture.

The Chinese Primrose may be increased by means of cuttings, divisions, or offsets; these methods are, however, seldom resorted to in the case of the single-flowered varieties, which are mostly raised from seed, but apply to all the double-flowered kinds, which, as a rule, do not produce seed. This method must also be resorted to in propagating any seminal variety which may exhibit such remarkable merits or peculiarities as may render its increase desirable; but, as has been stated, the single sorts are generally grown from seed, which should be sown during the spring of each year, say about the end of March or early in April, so as to have the plants in the greatest perfection during December and January. Or, if desired earlier or later, the time of sowing may be varied accordingly. The seed should be sown in well-drained pots or pans, spreading a thin layer of Moss upon the drainage to prevent the soil from intermingling with it; the rougher portion of the soil should be placed at the bottom, making the surface perfectly smooth and level and moistening it with a fine-rosed watering pot; while yet moist sow the seed, press it gently down, and sprinkle a small portion of silver sand or fine soil over it. This covering should, however, be very slight, and the surface of the pot or pan should be covered with a piece of glass, which during bright sunshine may be slightly shaded by a thin layer of Moss. The pot may now be placed in a favourable position in any glass structure where a temperature of 60° or 65° is maintained. Thus situated the seeds will soon germinate, and when this has taken place the glass should be removed, but during strong sunshine the young plants should still be slightly shaded, and water should be given as may be found necessary. When the young plants are large enough to be handled, they should be pricked into pans of suitable soil, and afterwards potted singly into small pots. As the season will now be considerably advanced, a close pit or frame will be a suitable place for them, and as soon as they have well filled the small pots they are in with roots they should be shifted into the pots in which they are intended to bloom, and for this purpose pots some

6 in. in diameter will generally be found suitable. If large specimens are desired, pots of greater dimensions may be employed, but handsome plants may be produced in pots of the size just mentioned. The final shift should be given not later than the beginning of August.

The pots used should be well drained, and the soil should be composed of about two parts light rich fibrous loam, and one part well decomposed leaf soil, with a small portion of silver sand; or fibry peat may take the place of the leaf soil and sand. In giving the last shift it is necessary to press the soil rather firmly to the stems, so as to keep the plants steady, as the stem is naturally weak, while the foliage and flowers are heavy, and if potted too deeply the stems are apt to canker off. Whenever it is found necessary, the plants can be readily supported and kept erect by inserting three or four small sticks into the soil, close to the stem, so as to afford it the necessary support, taking care at the same time to avoid injury to the roots. After the final shift has been given, the plants will still be found to succeed best in a cold pit or frame, placed upon a cool moist bottom, which produces also that moist atmosphere which appears to conduce so greatly to healthy development; they should be kept pretty close to the glass, and should not be placed too closely together, so as to avoid etiolation or undue lengthening of the leaf stalks. On this account it is also inadvisable to use anything in the way of permanent shade, although slight shading will be beneficial during very bright sunshine. No material is more suitable to form a bottom on which to place the pots containing the plants than a layer of 2 in. or 3 in. of finely sifted cinder ashes, which will prevent the

entrance of worms into the pots; these soon render the drainage ineffective, and that seldom fails to seriously affect the health of any plant confined to a pot. To still further secure the pots from such intruders, a thin layer of gas lime may be placed under the cinder ashes. The plants should be occasionally moved and placed further apart, as may be found necessary, and they should be kept free from weeds. When the pots are found to be well filled with roots, they should once or twice a week be watered with clear, well-diluted liquid manure, and the plants should be slightly syringed on the evenings of bright warm days. Early in October they should be moved into a greenhouse, or other light, well-ventilated structure. Early in November bloom trusses will begin to appear; and in order

to give the plants additional strength these may for a time be removed. As has been already stated, December and January are the months during which these showy winter-flowering plants are likely to be most appreciated; but they may, nevertheless, be had in bloom by the middle of November, or even earlier, and the same plants, with proper care, will continue in beauty until the end of February. No situation is more suitable for these Primulas than the front of a light greenhouse or conservatory. Still the temperature of such structures should as seldom as possible be allowed to fall under 40°, and the double-flowering varieties especially appear to enjoy a temperature rather higher than that.

Improved Varieties.

As has already been stated, the Chinese Primrose has been greatly improved since the period of its introduction, principally as regards its flowers, although habit and foliage have also undergone considerable improvement. The Fern-leaved varieties were justly considered at the time of their introduction to be a great acquisition, and on several occasions seedling plants have appeared with prettily variegated leaves; but somehow such plants have either been too delicate in constitution to be increased to any extent, or they have not been considered worthy of that attention; therefore, a Chinese Primrose with distinct and well-defined variegated foliage, if really a desideratum, has yet to be secured. It is in the flowers of these now popular plants in which such marked improvement has taken place. When first introduced, they were much smaller than they are now, while in colour they were a light purple or rosy-pink; whether the white-flowered variety originated in this country or was introduced,



Bloom of *Cymbidium Lowianum* (natural size).

I am unable to say. The margins of the corolla, however, in the case of both varieties were plain, and the flowers altogether such as could not be tolerated at the present day. The fringed or fringed-flowered variety appears to have been introduced some years after the introduction of the plain-flowered kinds; a plant of the former is mentioned as a new plant, grown in the Horticultural Society's garden at Chiswick, in the year 1824, and it appeared in trade catalogues in 1833, but it was then rare. No attempt appears to have been made to improve the flowers of the plain or smooth-edged kinds, probably on account of the greater beauty of the fringed-flowered varieties; and, as has been already said, the bloom of the latter has been of late years wonderfully improved in all respects, including colour, form, and size. As regards the latter quality, it will be found that a crown piece will fail to cover the blooms of many varieties; while, as respects colour, the most desirable shades have been secured—even a blue-flowered variety is said to be in existence. Continental countries, as well as our own, have contributed towards the improvement of this family of decorative plants, and the method, I believe, generally pursued is that of selection; a portion of the very best varieties are placed together in a favourable position in a light well-ventilated structure, and the fertilising process is left to insect agency and the action of the atmosphere, with possibly the assistance of an indiscriminate distribution of pollen by the aid of a camel-hair pencil. This method, however, although excellent results may have been obtained by it, is, nevertheless, somewhat haphazard, and it is possible that those whose success has been most decided have pursued a more systematic method. The stamens of the Chinese Primula are five in number, and are attached to the inside of the tube of the corolla, while the pistil occupies the centre of the flower; and in some plants the style is sufficiently elongated to elevate the stigma to the level of the surface of the bloom, while others produce flowers in which the style is so short that the stigma is concealed by the anthers. This peculiarity occurs also in the kindred families of the Auricula and the Polyanthus, and is distinguished by the terms pin-eyed and thrum-eyed; and so fatal is the objection to the former condition in a florist's estimation, that the presence of a single bloom having this peculiarity is considered of sufficient importance to disqualify the stand containing it, if shown in competition. The Chinese Primrose, however, has not as yet, I believe, been subjected to this somewhat arbitrary law, and it is very certain that its pin-eyed flowers are equally beautiful as those with thrum-eyes. But, be that as it may, they are at least the best suited for the purpose of being made seed-bearers, as foreign pollen can be with greater facility conveyed to the stigma than is the case with thrum-eyed flowers, where it is necessary to remove the anthers or slit the tube of the corolla in order to reach the stigma. And it happens that the blooms of the single-flowered varieties of this plant cannot with safety be subjected to great manipulation, on account of the corolla separating so easily from the calyx.

Seed Saving.

About the end of January or early in February is a suitable time to select a few plants, of the very best kinds, for the express purpose of furnishing seed for the next year's supply, and with, of course, the object distinctly in view of securing improved varieties. All fully-expanded blossoms should be removed, and the plants should be placed in a favourable situation, from which, if insects can be excluded, so much the better; but at this season their interference need not be greatly apprehended. Pollen should now be collected by means of a small brush or camel-hair pencil from the blooms of varieties which may be considered to be most likely to effect the desired results, such as depth of fringe, shade or intensity of colour, size and form of bloom, &c., and should be carefully applied to the matured stigmas of the intended seed-bearing plants. One application to each bloom will be sufficient, and in the case of pin-eyed blooms it will be quite necessary to remove the anthers. When as many blooms have been fertilised as is considered necessary, the plants should not be allowed to continue flowering, but the blooms should be picked off as they appear, so as to prevent exhaustion, and possibly hasten the ripening of the seed.

Double-flowered Kinds.

The double white variety of the Chinese Primrose has long been cultivated in this country, as well as a double purple variety, introduced, I believe, at a later period. Both are exceedingly useful for decorative purposes during winter, and, unlike their single congeners, the corolla does not in their case separate easily from the calyx; consequently the flowers remain longer in perfection, and their blooms during winter are quite indispensable for the purpose of forming bouquets, and placing with other cut flowers in vases, &c. In addition to the two varieties alluded to, some greatly improved forms have of late been introduced, having blooms of increased size, double, and well-formed, while the petals are beautifully fringed or fringed,

the colour varying from pure white to deep purple. These double-flowering kinds do not, as has been said, usually produce seed; most of them, however, furnish pollen to some extent, but generally rather sparingly, and this being used on the stigmas of some of the finest single-flowered kinds, has resulted in the production of a race of semi-double flowered varieties of great beauty, whose blooms are of a more persistent character than those of the single sorts, and are consequently more suitable for forming bouquets, &c. The flowers are also possessed of perfect stamens and pistils, and if the various sorts are placed by themselves, and fertilised by their own pollen, they will reproduce themselves perfectly true from seed. The double kinds flower generally so very profusely that by the middle of February they are usually somewhat exhausted; then the bloom trusses should be all carefully removed, and the plants should be allowed to rest for a week or two; they should then be shaken from the soil, divided, and formed into cuttings, to increase the stock as may be desired. A strong plant in a 6-in. pot may generally be divided into a dozen or more plants or cuttings, as it is not necessary that each portion should retain roots, as these are readily formed when potted singly into small pots in light, sandy soil, placing the cutting in the centre, and surrounding it with a portion of silver sand, pressing the soil firmly to the stem of the cutting or plant. The pots should now be plunged in a slight bottom-heat in a close pit or other structure, where a temperature not under 65° is maintained. As soon as the small pots are well filled with roots, the plants should be shifted into larger pots as may be found necessary, and during the summer they should be grown in a pit or frame, and treated in all respects as single-flowered kinds which have been raised from seed.

This family of decorative plants is already so rich in the possession of numerous beautiful varieties, that to attempt to still add to them may be considered unnecessary; but if a union can be effected between some of the existing varieties of the hardy Primula cortusoides, or dark-flowered varieties of *P. vulgaris*, or the Polyanthus—which does not appear to be altogether outside the limits of what may be considered possible—this, when accomplished, will furnish a new and interesting race of Primulas of increased hardiness, if not of increased beauty, which can hardly fail to be regarded as an acquisition.

P. GRIEVE, Culfjord.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Browallia elata grandiflora.—This fine form of the old *Browallia elata* is at this season most useful for conservatory and indoor decoration. It comes true from seed, which should be sown in heat in February or March, and, if the young seedlings be potted on as required, good plants at this season will be the result. Their flowers, being of a beautiful shade of blue, are very valuable for associating with those having bright colours that are usually employed in such structures. It also succeeds well out-of-doors, and makes a pleasing variation amongst ordinary bedding plants.—J. GROOM.

Anguloa eburnea.—There is certainly some confusion about the name of this plant, and I question very much if it is grown in England at all to any great extent. I have seen a plant exhibited under this name which was no other than *Anguloa uniflora* superba. The typical form of *A. uniflora* has dark-coloured pseudo-bulbs and very dark green leaves, the sepals and petals being white and very slightly spotted, and the lip rather more densely spotted with pale red or pink. *A. uniflora* superba, which is also grown as *A. eburnea*, has likewise dark-coloured pseudo-bulbs and leaves similar to those of the other. The flowers, too, are similar, with the exception of being nearly twice as large in all their parts. Has any one ever seen an *Anguloa* with ivory-white flowers? I think not. Mr. Williams states that he has only seen the true *A. eburnea* in the late Mr. Dawson's collection at Meadowbank, near Glasgow, but he says the lip was spotted with pink, the sepals and petals being pure white. J. DOUGLAS.

—Possibly "Z." (p. 165) is correct in supposing that the true *Anguloa eburnea* is not in this country. The plants which I have had under that name, and that I have seen elsewhere, do not differ from *A. virens*. T. BAINES.

Antiquity of Orchids.—"If we take into account," says Mr. Wallace in *Nature*, "the world-wide distribution of these plants, their immense richness in genera and species, and their wonderful complexity of structure, we must consider them as among the most ancient instead of among the most recent of flowers." Wetherhan writes: "Out of fifty species of Orchids in Gareke's 'German Flora' not less than forty-one occur in the British Isles," besides two not found in Germany, "a proportion exceeding that of phanerogams generally. Now as it seems scarcely credible that Orchids should possess means

of transportation across the sea in preference to other plants, we must conclude that they inhabited the British Isles before their separation from the Continent, which involves that they have occupied stations near the present coasts of Germany or France previous to a great deal of plants that reached these coasts only subsequently to the formation of the Channel." He also adduces the fact that the British Orchids belong to very different groups of the Order, enhancing the argument for antiquity based on their geographical distribution. —"Bulletin of the Torrey Botanical Club."

THE FLOWER GARDEN.

FUCHSIA RICCCARTONI AND ITS USES.

THIS fine old Fuchsia still ranks amongst the best of what are called hardy Fuchsias, if not of all outdoor flowering plants, for it grows on heedless of inclement seasons. Its beautiful blooms are produced in, if possible, even greater profusion in a season like this, that may truly be termed flowerless, than under more favourable circumstances.

in the very worst of seasons, if we be content with plants that flourish under ordinary conditions. It is the attempt to introduce plants from the Tropics, simply because they are expensive and more difficult to cultivate than those of temperate climes, that makes such blanks in our fashionable displays. This would perhaps be a favourable time for any one who is desirous of having a really enjoyable garden to make notes of all failures and successes during this hitherto exceptional season, and, in order to prevent disappointments in future, to discard all doubtful subjects, giving a prominent place to humbler but possibly more deserving plants. If this were done, I feel sure that Fuchsia Riccartoni would hold its own in the list either as a hedge plant or for single specimens on Grass, or as a wall or pillar plant, when the old wood should be spurred in like that of a Vine; or, if allowed to ramble at will in the wild or woodland garden, it will be found equally satisfactory. J. GROOM.

Linton.

Tiger Lilies in the Wild Garden.—The annexed engraving represents a group of the common Tiger Lily (*L. tigrinum*) growing in the wild garden at Great Tew, Oxfordshire. In such a situation



Tiger Lilies in the Wild Garden at Great Tew, Oxfordshire.

We have a hedge formed of large clumps of this beautiful Fuchsia overhanging a sunken wall, and most beautiful it looks either from the park or garden side. Although the old ripened wood of this Fuchsia will withstand ordinary winters, last winter's severe and protracted frost was too much for it, as it was killed down close to the ground; but this is no drawback, as I find that it always makes by far the best-looking and freest flowered plants when pruned down quite close in winter. After that the borders should be cleaned and a little manure forked into them about the roots of the plants.

This Fuchsia also looks well planted in hollow tree stumps cut into 2-ft. lengths and let into the soil about 6 in. Through these, if filled with good soil, the Fuchsias soon root into the solid earth below, and require no attention in the way of watering, as they are perfectly self-supporting and self-protecting. As single specimens on Grass, too, or on the margins of shrubberies this Fuchsia is equally at home, and when once planted it gives no more trouble, accommodating itself to our fickle climate better than most of our bedded plants have done of late years, as a season that suits our sub-tropical beds ruins our moisture-loving Calceolarias; therefore those who have but a limited space for ornamental gardening should decidedly select their plants from amongst those that defy the weather even in its worst moods. Happily there is no need for flowerless gardens even

Tiger Lilies grow with unusual vigour, as the soil in which they are placed is kept at a uniform condition as regards moisture, and the surrounding herbage also protects very considerably the young shoots in spring from the baneful influence of harsh winds, which are so detrimental to all kinds of Lilies. Indeed, this mode of growing Lilies would be attended with more success than in the bare and often exposed borders in the garden, where they are rendered susceptible to every atmospheric change. Besides, their bold flower-laden stems rising from amidst coarse herbage have a charming effect in the landscape, and one that only needs to be seen in order to be appreciated. —W. G.

Veronica Traversi.—This plant has long been known in the west of England, even in cottage gardens. In Mr. Ellacombe's garden at Bitton, where it forms large bushes, it, as elsewhere, has withstood the severe winter untouched. The same plant was sent out some years ago as *V. devoniensis* by Messrs. Veitch. By the way, there are many hedges of a very pale bluish New Zealand Veronica now in free bloom in cottage gardens in North Devon. They have a delicate odour. There are no doubt other forms besides Traversi which will be found to suit colder localities. The New Zealand Veronicas are very beautiful in southern gardens, and where they thrive a variety of kinds should be grown.—V.

JAPAN LILIES AT HOME.

FIRST comes *Lilium auratum*, or as some term it, the Queen of the Lilies, and more term it the Golden-rayed Lily of Japan. This is the common wild Lily of Japan, and when I first came here in 1864, one could not go out anywhere in spring without seeing this beautiful Lily growing in the woods and on the sides of hills. You would find it almost everywhere you went. You could see it in all its beauty, the stems averaging from 3 ft. to 12 ft. high, and the flowers numbering from three to one hundred and seventy-five on a single stem. I have seen stems more than 3 in. round. Sometimes, if the bulb is very old, they will throw up a round stem to about 3 ft. or 4 ft., when you will see it commence to get flat, and as the stem grows, so it gets wider and wider. I have seen them often as much as 6 in. wide at the top. The flowers from these stems far exceed those of the round stems in number, but not in quality, being much smaller. There is another good quality belonging to this Lily; it is quite hardy and will live through almost any weather; but I would advise those who grow it in very cold parts in open borders to protect it somewhat from the frosts, or to take it up out of the ground altogether and place it in a flower-pot, and put it in any cold place for the winter. Your bulb will then be good when you wish to plant it next spring. I know of no flower, with the exception of the *Olea fragrans*, that has so strong a fragrance as *L. auratum*.

L. auratum pictum is a seedling from *L. auratum*, and if you plant a bed of the latter you will often find one or two *L. auratum pictum* among them. The flower of this, instead of having a yellow band as in *L. auratum*, has a reddish band about half way down the flower. The growth and habit are just the same as those of *L. auratum*.

L. rubro-vittatum.—This is a seedling also from *L. auratum*, and it is the prettiest of them all. The flower is as large as that of the original, and has the same growth in every particular, the difference being in the flower only. Instead of the yellow band, as in *L. auratum*, this has a beautiful glossy red band, sometimes with spots and sometimes not.

L. auratum, var. *virginale* is another seedling from *L. auratum*. The flowers are pure white with the exception of the yellow rays, which are unusually brilliant, and a few scattered spots of pale lemon colour. This also, like its parent, is hardy, and if you did not see it in flower and saw this and *L. auratum* growing together you could not tell the difference.

L. kamschatcense (Black Lily).—This is called the Black Lily on account of the flowers being nearly black, but to speak the truth the flowers are a very dark purple, with very small yellow stamens. The flowers themselves also are small, and I have never seen more than three on a stem, and the stem never more than 1 ft. high.

L. concolor.—This has small star-shaped flowers of a light scarlet colour, dotted with dark red spots. It is very rarely that you find more than two flowers on a stem, and it does not grow more than 2 ft. high. The flowers stand erect.

L. coridum.—This is a seedling from the above, and only differs from it in the colour of the flower, which is yellow.

L. cordifolium giganteum (or *japonicum*).—I may say here about this plant, that unless you get very good bulbs indeed, you cannot get them to flower, and the best place to flower them is under shade in a shrubbery, for they do not like the sun. It grows well in a moist stiff soil. The bulb that you plant this spring is not the bulb you dig up in the autumn. The bulb you planted last spring, as soon as the flower-stem was out of the ground, had formed its own roots, and the bulb decayed altogether, and about the time of flowering, if you take one up, you will find that the new bulbs are just forming at the base of the stem. The leaves of this are very much like those of the Beetroot, but not quite so long. The first leaves come out at the surface of the ground, and when the stem is about 18 in. out of the ground it pushes a ring of leaves out all around, and out of the centre of these the flower-stem grows. The flower-stems average in height from 5 ft. to 7 ft., and I have never seen more than eight flowers on one stem in its wild state. The flower has four petals and is very long; the petals turn out like those of *L. eximium*, but are smaller in size. They are of a white creamy colour, tinged with a dash of light purple in the two upper petals.

L. japonicum.—This is a beautiful Lily, but quite a distinct variety from any of the others. The foliage is thick and stumpy, and darker glossy green than that of any of the others. The flowers are trumpet-shaped, and measure about 6 in. in length. They are pure creamy white in the interior, but sun-painted outside with a rich chocolate brown. This is one of the finest varieties, and is well worth having; it attains a height of from 3 ft. to 5 ft.

L. krameri.—This is another very fine variety, which no garden should be without. The flowers are inclined to be long, but not so much so as in the preceding sort. Those of some are of a most delicate pink, some are darker, some are pure white, and some are white with a small tinge of pink. This Lily throws up a stem from 3 ft. to 6 ft. high, and has from four to twenty-five flowers. It thrives in a light, dry, peaty soil. It will rot where another bulb will thrive.

L. leichtlini.—This like the above is one of the best varieties; it has the slenderest stem of any of the Lilies compared with its height. The flowers are a golden yellow thickly dotted with purple spots. The ends of the petals curl backwards on to the stem. The average height is from 3 ft. to 5 ft., and it will produce from eight to twelve flowers.

L. longiflorum eximium is the common long, white, trumpet-shaped flowering Lily. It is common, but it makes a very good Lily to mix with others in a bed. It grows from 2 ft. to 4 ft. high, and will produce from five to ten flowers on a stem.

L. longiflorum foliis albo marginatis.—This is a seedling from the above and was raised by a Japanese gardener; it only differs from the preceding by having a narrow, even, white border round the leaf.

L. martagon.—This is quite a distinct variety from any of the others, the flowers being much smaller, and inclined to curl backwards. They are yellow, with dark spots in them. The foliage resembles that of *L. japonicum*. The plant attains a height of from 2 ft. to 5 ft., and will produce from six to seven flowers right on the top of the stem.

L. medeoloides.—This is another Lily well worth growing, but a very hard one to travel if not properly packed, as the bulbs are formed of small round leaves, and if one is not careful in handling them they fall to pieces. The leaves are quite different from those of any of the others, being formed in circles around the stems. These attain a height of from 2 ft. to 4 ft., and never produce more than six or eight flowers. The colour is orange-red with dark spots.

L. speciosum rubrum.—This is another very fine Lily and well worth cultivation. It is also very hardy. The flowers, which are red with a strip of Pea green in the interior, curl backwards; they also have a margin of white and are spotted with red.

L. speciosum album.—This has the same habit in every particular as the preceding, the only difference being that the flowers are pure white with a small stripe of Pea green up the centre. The height of the stem is from 4 ft. to 6 ft., and it produces from twenty-five to thirty-five flowers. These are the two latest to flower.

L. thunbergianum fl.-pl..—This is a dwarf, hardy variety, and one of our few double Lilies. The flowers are a fiery-red with dark spots; the outer petals being much larger than the centre ones. It very seldom grows more than 18 in. high, and never produces more than three or four flowers on a stem. It is one of the first to bloom.

L. t. marmoratum.—This is a single variety of the above. The flowers are a deep orange-red, with irregular tawny stains, chiefly at the tips of the petals, giving them a splashed appearance.

L. t. tatzla.—This is a little larger in growth than the last. It will sometimes grow to a height of 4 ft., and will bear from five to seven flowers right on the top of the stem; but the flowers are quite separate from one another; that is, they do not touch each other like some kinds. They are light yellow in colour, tinged with pink.

L. t. bemy.—This is another of the above family, but quite distinct from any of them in colour and foliage. The flowers are a very dark chocolate, turning almost to black; they are erect.

L. t. alice wilson.—This is quite a new variety of the above. I sent one bulb of it to London in 1875. It was sold by auction to Mr. Wilson, of Heatherbank, who flowered it in 1876 and named it as above. The flowers are a light orange-yellow, and stand erect.

L. tigrinum fl.-pl..—This is another of the few double varieties which we have, and one of the latest to flower. The petals decrease in size towards the centre. It is a very robust grower. The flowers, which are fiery-red in colour, are marked with large purple spots. It is the finest among the double varieties.

L. t. splendens.—A single variety of the above, and, if anything, a little taller. These two, like *L. speciosum rubrum* and *album*, throw out small bulblets in the apex of the leaf. I would just mention here that *L. album* and *L. tigrinum fl.-pl.* and *L. tigrinum splendens* are used by the natives as a vegetable.

I would also add here for the information of those who would like to grow the Black Lily and *L. medeoloides* and have not been successful in their attempts, that *L. medeoloides* must be grown in a very light peaty mould, mixed with a little sand, and the same with

the Black Lily. The same mould will do, but do not let them get too much water. If you do you will be sure to lose all you have. All the remainder of the *Liliums* are perfectly hardy and will grow in almost any garden soil, but as I have stated above, where it is very cold it is best to take them up in winter and store them in any dry place where it does not freeze. I would also add, that if you wish for fine flowers, you must use good soil mixed with well-rotted manure. The Black Lily should be put in pots not more than 6 in. deep, and about midway in the pot.—*California Horticulturist*.

THE RAMONDIA-LIKE CONANDRON.

(*CONANDRON RAMONDIODES*.)

THE annexed engraving is a representation of this rare plant, a specimen of which was exhibited at South Kensington a short time ago by Messrs. Veitch & Sons, when it was awarded a botanical certificate. The illustration gives a good idea of the general habit of the plant, though the peculiar wrinkled appearance of the leaves is not shown very clearly. The leaves are fleshy in texture, and spring from a fleshy, brownish rootstock. The colour of the blossoms is pale lilac, with the centre of a much deeper hue and spotted with yellow, the tuft of stamens being also yellow. There is also a variety with white flowers introduced. The extreme rarity of this plant much enhances its interest, and it is, moreover, very remarkable from a structural point of view. It grows at high elevations on mountains in the southernmost island of Japan, where it was recently collected by Mr. Maries, who is travelling for Messrs. Veitch. Naturally it prefers moist rocks, and this is a point that should be observed with regard to its cultivation. Though it is grown in frames in Messrs. Veitch's nursery at Coombe Wood, it is most probably as hardy as the pretty *Haberlea rhodopensis*, of which a woodcut was given in these columns a short time since, and which is nearly related to this plant. Hardy plants of the families to which these belong are very scarce in cultivation at present, though amongst them many are really beautiful, and might be advantageously introduced. The seeds of Himalayan *Cyrtandraceae* plants distributed from Kew last year may perhaps produce some very welcome results, as many from the regions from which they come ought to be hardy, and from what may be gleaned from the elaborate drawings in Mr. C. B. Clarke's recent work on Bengalese *Cyrtandraceae*, many of them must be very beautiful, and ought to be a source of much interest both to the botanist and cultivator.

W. G.



Conandron ramondoides (half the natural size).

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FLOWER GARDENING IN BATTERSEA PARK.

EVEN if this fine park were shorn of its most noteworthy attraction—the annual display of bedding plants and its famous sub-tropical garden—it would still be highly picturesque, and excel all the other public parks on account of its excellent design, which embraces well diversified lawns, extensive and varied water margins with luxuriant aquatic vegetation, natural-looking rockeries, and, above all the permanent beauty afforded by the rich collections of trees and shrubs, remarkable both for their handsome foliage and beautiful flowers, which during spring form the principal source of attraction. Indeed it is generally admitted that the most appropriate season to see the real beauty of this park is in early spring when the majority of the trees and shrubs are in bloom. Another noteworthy feature, too, in this park is the prevalence of hardy, fine-foliaged plants grown either as isolated specimens, or in some prominent position at the margin of the shrubberies. The most noticeable amongst these are *Polygonum sachalinense*, a grand plant growing from 8 ft. to 10 ft. high; *P. cuspidatum*, which is now bearing a profusion of pretty white catkin-like blossoms; *Gunnera scabra*, *Arundinaria falcata*, various kinds of *Acanthus*, *Echinops*, *Grasses*, besides a host of the finest foliaged shrubs, such as cut-leaved *Elders*, *Tamarisk*, golden and variegated varieties of the commoner shrubs and trees. The handsome *Aralia spinosa*, *Ailantus glandulosa*, and *Aralia Sieboldi* are used extensively, and few more desirable shrubs could be found. Shrubs now in bloom comprise the beautiful Chinese *Privet* (*Ligustrum sinense*), and the Japanese kind (*L. japonicum*), both very sweet scented. Single flowered *Roses* such as *Rosa nitida* are very attractive, as are also huge bushes of the double-flowering *Bramble* with its pretty pink rosette-like flowers. *Pavia macrostachys* and several kinds of *St. John's Wort*, including the beautiful Himalayan *Hypericum patulum* and *Spiraea Nobleana*, are also very strong. The groups of Jackman's *Clematises* are now very gay masses of colour, varying from pale to a deep violet-purple. In one part they are allowed to ramble over branches, which shows off their beauty to advantage. Those overhanging the ledges of the rocks are also very attractive with their brilliant flowers mixed with Ivy and other plants. It is, however, much to be regretted that there is such a paucity of the finest of hardy herbaceous plants, which would seem to be quite ignored here. During the present season especially their absence is conspicuous on account of the dearth of bloom of the bedding plants. The many unoccupied places caused either by the failure of the tender plants, or scarcity of bedding material, could be most advantageously filled with showy hardy plants, which would not fail to be a source of considerable attraction, and if not in flower throughout the four seasons, they would relieve the dull monotony of bare earth which prevails during two-thirds of the year. Attention is now being directed to improving the old rockery which skirts the Albert Bridge Road. The picturesque dells have been very tastefully planted with all kinds of plants likely to succeed in such situations, and when established will render this portion of the park one of the most beautiful and interesting.

The Mixed Alpine Garden exhibits very markedly the untoward season, as the incessant wet has almost rotted the majority of succulent plants which usually form such a conspicuous feature here. The "snowy" mounds covered with the dwarf creeping *Antennaria tomentosa* still look very effective, as do the mounds near them which are clothed with a great variety of plants, one of the most conspicuous being the beautiful Himalayan *Astilbe rivularis*, an elegant *Spiraea*-like plant with long feathery flower stems, tiny white flowers, and bold handsome spreading foliage. *Bonaparteas*, *Aloes*, *Agaves*, *Beaucarneas*, *Mesembryanthemums*, and a host of other similar subjects are planted here, but, as before remarked, their appearance is but indifferent. The rare *Yucca Whipplei* is doing well and probably will eventually prove a serviceable plant. The surface of these mounds is carpeted with the Turfing Daisy (*Pyrethrum Tehichatchewi*) and the elegant *Leptinella scariosa*, various *Stonecrops*, &c. The Fern banks are quite as attractive as in former seasons, though the tender Palms, Succulents, &c., even in these sheltered places show signs of the unfavourable weather.

Sub-tropical Beds.—However much care might have been bestowed in the selection of suitable tender plants for producing a sub-tropical effect in the open air during the present unfavourable season, the result is much inferior to that of former seasons. All, with the exception of the hardiest, have done but moderately well. The belts of *Cannas*, *Polymnias*, *Wigandias*, *Solanums*, the *Castor Oil* plants, and similar subjects have grown only about half their usual height, whilst, on the other hand, the season has been favourable for the luxuriant growth of hardy plants such as the various kinds of *Funkias*, which since the spring have been the leading ornament of flower gardens. Their handsome and often beautifully variegated foliage and their pretty mauve-tinted blossoms render them highly desirable for gardens of all sizes. The plants arranged in groups beneath the shade of the trees are much the same as those

noticed on former occasions. They consist principally of large growing Aroids, Palms, Bromeliads, Ferns (both tree and stemless), Musas, Cannas, and similar subjects. An interesting feature and one that is apparently much appreciated is the mixed beds of tender plants disposed without any definite arrangement. These comprise plants of considerable diversity as regards habit and flowers, and they come from all quarters of the globe. Here Australian plants are represented by Grevilleas, Callistemons, Acacias, &c. The gaudy Mexican Tiger Flower (*Tigridia Pavonia*) is pre-eminently conspicuous, as well as the graceful *Desmodium penduliflorum*, a most desirable shrub for warm situations. The old-fashioned *Fuchsia fulgens* and other tender kinds thrive well and flower freely, as do also different sorts of Abutilons, *Lilium auratum*, the showy *Kalosanthes coccinea*, and various other plants. Large specimens, too, of the elegant *Sonchus laciniatus* with its feathery foliage give an air of lightness to the beds. Near these is a bed particularly striking and much admired; it consists of a groundwork of the variegated Vine (*Vitis heterophylla variegata*) studded with small plants of the elegant *Grevillea robusta* and edged with the variegated Honeysuckle, *Sedum*, and *Alternanthera*.

Carpet Bedding.—Except in the case of the partial failure of such tender plants as the *Alternantheras*, this style of bedding looks fairly well here this year, the present moist season having been favourable to the growth of most of the plants employed. Some oblong beds especially, which are near the entrance to the sub-tropical garden, are characterised by delicacy of finish, the subjects being well chosen for the purpose. The design consists of a series of circles of various sizes; the plants used are *Alternanthera versicolor*, *A. paronychioides*, *A. amœna*, *Echeveria secunda glauca*, *Sedum glaucum*, and *Mentha Pulegium gibraltarica* (which has succeeded admirably everywhere this season). Several similar beds are also attractive, the designs being well defined. The artistic arrangement, too, of some of the circular beds is noteworthy, especially those in which is planted a circle of neat examples of *Dasyliion*. There seems to be nothing new or uncommon in the way of plants applicable for carpet bedding, except a golden-leaved variety of the Round-leaved Cranesbill (*Geranium rotundifolium aureum*), a neat-growing kind, but not golden this season owing to the continued wet. From the same cause the coloration of the foliage of many of the plants used is by no means so rich as in former seasons—such as that of the Golden Stitchwort and Golden Feather *Pyrethrum*.

The *Pelargoniums* and other flowering bedding plants are, as is everywhere apparent this year, far below mediocrity, and the cutting of the plants for propagating purposes has not improved their condition. The brightest and most successful set of beds of this kind are those representing a fan-shaped device near the Chelsea Bridge entrance. Their forms are well defined, and, with but few exceptions, all the plants have thriven moderately well.

W. G.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Selaginella helvetica.—This is the name of a very neat, dwarf, compact-growing Lycopod I saw recently at Messrs. Sutton & Sons' Reading Nursery, where it has the reputation of being entirely hardy, as it was stated that it had stood all the previous hard winter in the open air in Germany without suffering. This variety presents an intermediate form between denticulata and densa, and would, if proved hardy here, make a capital rock plant, as it produces a firm, close carpet of growth. It is something to the credit of this kind that it looks hardy, but that may be incidental, the plants being now in a cold frame and treated as hardy. Should it be found to be all that is expected, this Lycopod will prove an interesting and valuable addition to our hardy carpet plants, and might be largely used in decorative bedding.—A. D.

Hydrangeas Planted out.—The *Hydrangea* is a plant which one seldom meets with really well grown, yet it is capable of the very best effects, and well repays any extra attention which it receives—a statement which may be easily proved by the superb small specimens that London market growers yearly send to Covent Garden about this time of the year. But when grown into large plants its strong, gross-feeding roots soon impoverish the soil, and unless the latter be well supplied with liquid manure the blooms become small and the foliage sickly. Having several such plants that were too large for indoor decoration, I planted them out last autumn in a very exposed position as an experiment, and the wood being well ripened they braved the inclement weather of the past season well, and are now covered with a fine display of bloom-heads. We have beds of them in several different positions, and I find that those in sheltered and rather shaded places suffered more during the winter than those fully exposed, as the young wood was soft

and immature. In a season like the present such a beautiful flowering plant as this—one that is capable of producing a lasting and cheerful display of fine flowers while the ordinary summer bedding plants are completely washed out—deserves a little more attention than it has hitherto received. Before planting, the beds should be deeply trenched, but if the soil be of good quality little manure should be applied at first; but after they get established and have done flowering the old weakly wood should be well thinned out and a good top-dressing of manure should be applied annually.—J. GROOM, *Linton*.

Preparing for Spring Bedding.—Where this is carried out, many of the subjects employed will now need attention. Plants in the seed beds, such as Wallflowers, Stocks, Forget-me-nots, &c., will require transplanting into single lines. Cuttings of *Alyssums*, *Aubrietias*, *Pansies*, &c., must be put in; and seeds of various sorts, such as *Silenes*, *Virginian Stocks*, and *Nemophila*, must be sown. Bulbs that have been laid in to complete the ripening process will need cleaning, and others should be purchased for making good deficiencies, as, however bad the season may be, good bulbs may be relied on to produce a fine display, and their gorgeous colours go far towards making an effective spring garden.—J. G.

Tuberous-rooted Begonias.—I am pleased to see so much said in favour of these plants; they cannot be too highly praised. Those at Messrs. Veitch's which I saw were simply splendid, especially one called, I think, *Monarch*, but there were so many and all so beautiful that I might possibly have made a mistake. If not *Monarch*, that is what it should have been, for it was monarch of all I saw. I am growing some few, and have flowers on some of them which measure $\frac{3}{8}$ in. in diameter. Those who have to furnish a conservatory at this time of the year would find these plants invaluable; they are so easily grown and stand so well that they put *Pelargoniums* completely into the shade. I have no decoration now, but still I grow them, and have been this day amongst them with my camel's-hair brush, for I expect something better.—JOHN CLEWS, *Headfort, Kells*.

Nasturtiums as Screen Plants.—At this season of the year the tall-growing varieties of *Nasturtium* make extremely effective screens for hiding unsightly objects. If planted against strained wire netting or any kind of support, they will train themselves with but little attention, provided the shoots are occasionally regulated, in order to keep them from becoming matted together. In addition to their good foliage, their bright cheerful flowers of many shades of colour continue to be produced in abundance until the early frosts bring the floral display of tender plants to an end.—G.

The Eulalias.—These Grasses are very handsome now in the Bitton collection. *E. japonica variegata* is perhaps the handsomest variegated Grass yet introduced into England, as the variegated *Arundo Donax* does not thrive everywhere. *E. zebrina*, with the curious broad bands across the leaf, is also remarkably striking at this season, when the markings come out more clearly than earlier in the year.—V.

Mixed Sweet Peas.—Amongst the brightest plants in the garden at present are some mixed Sweet Peas. They were procured in packets of separate colours, scarlet, white, purple, &c., and sown evenly in rows, the result being a very beautiful mixture of colours. They should have good rich deeply-cultivated soil in which to grow, and as soon as they are well up they should be earthed and staked, and if dry weather ensues a good mulching should be given along each side of the row and copious supplies of liquid manure, keeping the seed pods picked off closely.—J. GROOM.

Eschscholtzia Mandarin.—This deep-coloured variety of the old bright yellow *Eschscholtzia* is very pretty for beds or borders. If sown in March in well-prepared ground it will keep up a continuous display during the whole season.—J. G., *Linton*.

The Canadian Moonseed.—This is one of the many climbers the effect of which is usually destroyed by being nailed against walls or similarly despoiled of any grace which they possess. Freely trained over an arch in the garden at Bitton, and hanging down in wreaths, it looks a climber worthy of a place in a garden.—V.

Phlox Van Houttei.—We notice this beautiful old striped Phlox in the garden at Bitton. It has been lost in many collections, including that where it originated. It deserves to be carefully propagated and made plentiful.

Amaryllis Acramani.—This fine *Amaryllis* proves as elsewhere quite hardy in Mr. Ellacombe's garden at Bitton. A hardy *Amaryllis* which is also very handsome should be taken note of.—V.

Androsace Lageri.—This is a charming dwarf, tufted, densely-branching plant, 2 in. to 3 in. high, bearing a profusion of pale rose-coloured flowers nearly throughout the month of May. There is a coloured plate of it in "*Regel's Gartenflora*," t. 969, where it is stated that it differs from *Androsace carnea* in its more densely-branched, dwarfer habit, &c. It was not however, as Dr

Regel supposes, an unrecognised species, having been described by Huet de Pavillon some twenty-five years ago. Previously it had been confounded with *A. carnea*, from which it is very distinct from a gardener's point of view. The leaves are almost as fine as those of *Spergula pilifera*, and, like that plant, the short, intricately branched stems form a close tuft, from which the flower-stems rise about 2 in. or 3 in. high. Individually the flowers are small, but they are borne in clusters of six or eight at the top of the naked stalks, which are so numerous that the plant is a mass of flowers. There is also a good plate of this in Jordan & Fourreau's beautiful "*Icones*," t. 766. It is a native of Mount Do in the Southern Pyrenees, and succeeds with very little trouble in half-shaded spots in the rock garden.—W. B. HEMSLEY.

Anometheca cruenta.—In gardens on free soils this neat and bright little plant often grows so freely as to become almost naturalised, and is then very pretty as a flowering carpet to other subjects.

Veratrum viride.—The true plant is not often grown in gardens under this name. There is now a plant of it at Bitton 8 ft. high, bearing a huge drooping panicle of seed vessels. It is a very striking hardy fine-leaved plant.—V.

THE DODDERS.

THE entangled masses of small wire-like tendrils which are often seen in fields twining round the stems of other plants belong to annual leafless parasites known as Dodders, species of the genus *Cuscuta*. They are very mischievous to crops, which they soon destroy.



Clover Dodder.

Nearly half a hundred different kinds of Dodder are known, and of these there are four or five distinct kinds indigenous to this country, though on this point authorities differ. These are the Great Dodder (*C. europaea*), with much branched stems of a red or greenish-yellow colour, and small white flowers tinged with red, borne in clusters about the size of large Peas, and produced towards the end of the summer. It is rather rare, and grows on Hops, Nettles, Vetches, Thistles, &c. A second kind is the Lesser Dodder (*C. Epithymum*), which has very slender, bright red or purple stems and dense clusters of flowers tinged with rose colour and very pretty in appearance, as they lie in patches on Furze, Heath, Thyme, or other dwarf shrubby plants. It flowers at about the same period as the foregoing, and is not so uncommon. The Clover Dodder (*C. Trifolii*), which is represented in the accompanying woodcut, is considered to be a variety of the Lesser Dodder, though easily recognisable by its singular partiality for strangling the common red Clover. It is so prevalent in some localities that whole fields have been destroyed by it. It first appears in small patches, but in a few days covers large spaces. The Flax Dodder (*C. Epilinum*) is so called on account of its singular propensity for attacking fields of Flax, and the extent of the mischief caused by it in some districts during favourable seasons for its growth is very considerable. It is about the size of the Great Dodder, but usually more pale and with more fleshy stems. It is not a native plant, and it is said to have been introduced from other parts of

Europe with foreign Flax seed. *C. hassiaca*, which attacks Lucerne, and *C. approximata* are sometimes met with, but by no means common. W. G.

PROPAGATING.

PROPAGATION OF LAPAGERIAS.

It is now over thirty years since the rose-coloured variety of this plant came into England, and when first it bloomed with Messrs. Veitch, the distinct form and colour of the flowers and the general habit of the plant at once gave it a high position in the estimation of plant-lovers. In due time it was distributed, and when it got a little cheaper I obtained a plant of it which was anything but large. It was a little wiry tough-looking specimen in a 6-in. pot, with a shoot about 3 ft. long, that did not convey the idea of its being a subject that would acquire strength at anything like the rate many plants do. I repotted it as soon as it had made roots in sufficient numbers to warrant its being benefited by having more room, and in the succeeding spring it pushed up a shoot considerably stronger than the one which it at first had, and which grew to some 7 ft. before it stopped; it was again shifted in spring. I knew nothing about its propagation, but was anxious to increase it, and the following year I took off a couple of young shoots with a heel to them, *i.e.*, made from near the top of the preceding season's growth, and inserted them in the usual way, but they both dwindled off. The shoot made that season was much thicker and larger than that produced the preceding one. In autumn I cut off a portion of the current year's fully-ripened growth and made it into cuttings. Several consisted of a couple of joints and two or three of the stoutest one joint each (or, as is more usually expressed, a single eye) cut just below the joint, but with as much length of shoot above it as could be got below the upper eye. These, kept cool, moist, and covered with a propagating glass, took several months to "callus," after which they were placed in a little warmth, and about half of them grew; but the shoots which they made were no thicker than a darning needle, and they were several years before they attained strength enough to make much progress, although they pushed up a shoot each from under ground each spring in the way natural to the plant. I have given above the details of my experience in striking this plant from cuttings, which I believe was similar in result to that of others who have tried to increase *Lapagerias* by this means. It is evident that little or nothing can be done in propagating them from soft immature shoots, and the wood is naturally so hard and wiry that, even when rooted from cuttings made from the fully-ripened wood, the growth produced is so weak that it takes years longer to get the plants up to a reasonable strength, such as is obtainable by means of layers in a much shorter time.

Two years afterwards I layered a couple of the strongest shoots of the original plant in the way practised by trade propagators, allowing the rest of it to remain in its position on the shady end of the greenhouse. I followed the course suggested to me by one who had had a good deal of experience in propagating the *Lapageria*; I got a box some 6 ft. in length by 3 ft. in width, and 10 in. deep, with the usual holes in the bottom. Into this I put 2 in. of drainage materials, and filled up with good fibrous peat, made fine, with sufficient sand added to it to admit of water passing off freely. The surface was pressed quite smooth and the shoots pegged regularly down upon it, bending them round so as to cover the space evenly. On the shoots I laid about $\frac{1}{2}$ in. of soil similar to that with which the box was filled, made quite fine, and pressing it moderately. All the leaves were kept erect and had their base in the soil to the depth at which the shoots were covered; the layering was done, so far as my memory serves me, about the beginning of November, when the season's growth was fully hardened; the soil was kept fairly moist through the winter, and as the spring advanced the young shoots began to appear aboveground, but not from every joint. There was considerable difference in their strength, the largest coming from the strongest portion of the layered shoots near their base. The whole were taken off and potted singly in the autumn, and they were afterwards treated in the usual way.

"J. S. W." speaks (p. 132) of the propagation of the white variety of *Lapageria*, which is in no way different from that of the red one: he says that it will probably be found the best to propagate them like Vines from eyes; but I do not think his expectations will be realised. The character of the two plants is very different; that *Lapagerias* can be increased from single joints (eyes) is correct, but the growths resulting from such are so weak that they take too much time to attain the strength possessed by layers. A Vine eye will make as much progress in a few weeks as the layered bud of a strong shoot of *Lapageria* will do in as many months. The process

of development in these layered *Lapagerias* is very different from that of most plants; after layering, the bud swells to about the size and shape of a newly-formed *Camellia* bud, and then, before it makes any further progress, or shows above ground, it forms a tuft of roots which push their way into the soil before the shoot appears above the surface. The Handsworth Nurseries spoken of by "J. S. W." have, as well as a few others, been for years noted for their successful treatment of these plants, but few propagators of *Lapagerias* will be prepared to accept "J. S. W.'s" statement when he says that "plants reserved from last year's young stock have now ten shoots or more." Even in the case of the very strongest it takes some time before more than one or two annual shoots are made. The habit of *Lapagerias* in this respect is more like that of the *Bomareas* than any other plants with which I can compare them. Will "J. S. W." give us a little further information respecting these young Handsworth *Lapagerias*? T. BAINES.

NOTES OF THE WEEK.

Burbidgea nitida.—This is one of the most beautiful of the novelties in Messrs. Veitch & Sons' nursery, Chelsea, where it has been in flower for some time. It belongs to the *Ginger* family, and grows from 2 ft. to 10 ft. high. It has somewhat slender erect stems, scantily furnished with bright green leaves of leathery texture, attaining from 4 in. to 6 in. in length. The flowers are produced in terminal panicles, consisting of from twelve to twenty blossoms, which vary from 1½ in. to 2 in. across, the rich orange-scarlet segments forming a triangular outline. It is a native of Borneo, where it was first discovered by Mr. F. W. Burbidge, in compliment to whom it is named. It grows in shady forests in the north-west part of the island, at an elevation of from 1000 ft. to 1500 ft.

Calandrinia nitida.—Amongst rock plants this is a perfect gem when grown well, and one that is yet scarcer than it should be. It grows from 6 in. to 9 in. high, and has ovate lance-shaped leaves which are very glaucous. The flowers are 1 in. or more across, of a rich violet-purple hue, and are produced in loose racemes. It is numerously represented on the rockery at Mr. Ware's nursery and is now in full flower.

Pentstemon Clevelandi.—This has succeeded better at Kew this season than hitherto, and has shown off its beauty to very much better advantage. The tall raceme of flowers has grown nearly a yard high; their peculiar hue is scarcely describable, but probably the nearest approach to it is pure magenta, a colour rarely seen in wild species. All the *Pentstemons* seem to have thriven better this year than usual, a fact probably owing to the wetness of the season.

Phlomis cashmiriana.—This very rare Labiate is represented by a large clump in the Hale Farm Nurseries, Tottenham, and is now finely in flower. It is of dwarfer habit than any of the better known kinds. It is herbaceous, and somewhat resembles *P. Herba-venti*, but the flower-heads are denser and the flowers larger, and they have a broad violet-purple lip. It is by no means new to cultivation, having been introduced many years ago, and well figured in the "Botanical Register."

Lilies at Chelsea.—A house in Messrs. Veitch & Sons' nursery filled with pot plants of *Lilium auratum* and *L. speciosum* and its varieties, is now a sight worth seeing. It shows well the adaptability of these lovely plants for conservatory decoration, though they are not so extensively used for such a purpose as they should be. At this season it would be difficult to name a more suitable class of plants, for, combined with their showy flowers, they are elegant in habit and their blossoms emit a delightful perfume.

Habenaria pycnodes.—This is one of the prettiest of the hardy North American Orchids. Its flower spike, which grows about 1 ft. high, has its upper half furnished with a raceme of violet-purple blossoms, the tips of which have a delicate fringe at the edges which renders them very attractive. It seems to thrive admirably in peaty soil on the rockery at Mr. Ware's nursery, where it is now finely in flower.

Orchids at Kenwood, Albany, N.Y.—Amongst the rarer kinds of Orchids now in flower in Mr. Corning's garden at Albany, are *Phalæopsis violacea* and *P. Lobbi* (*P. intermedia* var. *Portei*), two of the rarest as well as most beautiful of the *Phalæopsis*-ids. The superb *Cattleya exoniensis*, *virginalis*, and *Brabantia* are likewise well represented, as are also *Epidendrum Wallisi* and *dichro-mum*, which are amongst the most distinct and beautiful kinds belonging to this large genus. Two desirable varieties of *Miltonia* are *Regnelli purpurea* and *Morelania atarubens*, and one of the loveliest of all the *Dendrobiums* is *D. Macarthia*, but unfortunately it is a somewhat difficult plant to manage, though it succeeds well

here and flowers freely. An interesting variety of *Oncidium* is *O. prætextum*, a kind apparently intermediate between *O. crispum* and *O. Forbesi*. *Stenia fimbriata*, a terrestrial sort, is a perfect gem, and one which should be in every collection. *Ionopsis paniculata* and *Bifrenaria aurantiaca* are very showy when grown in large masses, but they are rather scarce. *Cypripedium niveum* is unusually strong here, several stems bearing three flowers. The cool house is particularly gay at this season with the large-flowered variety of *Epidendrum vitellinum*, *Disa grandiflora*, various kinds of *Odontoglossum* and *Masdevallia*, &c.—F. GOLDRING.

Ellacombe's Yucca.—This superbly-beautiful plant is now in fine flower at Bitton, and deserves to be made more common. With the precious qualities of hardiness, fine form, and abundant bloom, common to the other *Yuccas* of the *Y. gloriosa* type, it has the additional charm of a rich suffusion of reddish-crimson on the outside of the flowers. This makes the effect of a stately pyramid of its flowers one of the finest to be seen in the garden. It does not seem to differ much from, and is at least quite as ornamental as, the *Y. superba* of the "Botanical Register." Messrs. Osborn, of the Fulham Nurseries, have, or used to have, a stock of this plant, and they would do a service to gardens by increasing it.

Spigelia marylandica.—A fine example of this scarce North American plant is now in full flower in the herbaceous ground at Kew, where its long, deep, blood-red and yellow blossoms are singularly beautiful. Seldom is it seen growing in such a mass, but it did not attain such a size at Kew; it was brought from a garden in Berkshire about a year ago, where it was growing in a fully exposed, sunny border, planted in a stiff loamy soil without a particle of peat. Now that it is put in peat it is showing signs of deterioration, evident proof that it requires different treatment—that it either lacks the bracing climate of the Berkshire hills, or that peat does not suit it so well as a loamy soil.

Lilium longiflorum and its Varieties.—Mr. Ware has sent us flowers of this fine Lily from his nursery at Tottenham, in order to show the marked difference that exists between the flowers of *L. longiflorum* and the variety *eximium* when well grown. The superiority of the latter is very apparent, but both are well worth growing. Mr. Ware has now seven distinct varieties of *L. longiflorum*, which vary in the time of flowering, thus affording a succession of blossom for at least five weeks, a fact which considerably enhances the value of this superb Lily. It is also perfectly amenable to gentle forcing, and by this means the flowering season may be much prolonged.

Berberidopsis corallina.—This is one of the most attractive amongst the wall plants at Kew at the present time. It is growing against the wall of the T-range, where it has been for some years, and where it has withstood the past winter unhurt. It has been aptly named the Coral Plant, on account of the similarity of its pretty drooping, red flowers to coral. Though it has been introduced to our gardens from Chili for nearly a quarter of a century, it is by no means so frequently grown as its merits entitle it to be, as few more desirable plants could be recommended for embellishing the roof of a greenhouse, where it succeeds far more satisfactorily than in the open air.

Bonaparteia juncea in Bloom.—There is at present in a stove at Seapark, Morayshire, a large specimen of this old-fashioned Peruvian plant in full flower. It is growing in a 15-in. pot, the soil used being loam with some brick dust. The stem or trunk is about 2 ft. in circumference, from which spring the Rush-like leaves averaging 22 in. in length; the flower stem rises to a height of 10½ ft., and of that 7 ft. are furnished with flowers of a greenish white colour, each about the size of a single Hyacinth pip; the stamens are double the length of the flower. There are upwards of 500 flowers on the plant.—WM. MACKIE, *Seapark, Forres*.

Gloriosa Plantii at Chelsea.—This beautiful climbing plant is very attractive just now in the stoves in Messrs. Veitch's nursery, where it is growing in moderate-sized pots. The main shoot, which is trained to the rafters for about 8 ft. of its length, subdivides at that height into branchlets which hang down gracefully and bear an abundance of blossoms. The latter have a striking appearance, owing to their singularly twisted, reflexed petals, which, when first expanded, are greenish-yellow, gradually changing to a bright orange-scarlet. A variety named *grandiflora* is much superior to the older kind, its colour being far more brilliant. Considering the adaptability and the easy culture of this climber it ought to be more frequently grown in stoves and greenhouses than it is.

Thyme on Rockeries.—In reference to your correspondent, who has just discovered the value of wild Thyme on a rockery, I would remark that it was about the first plant which I admitted on my own thirty years ago, but I soon found out that *T. hirsutum* was superior to it.—CHARLES ISHAM, *Lampport Hall, Northampton*.

Spikenard of the Ancients.—In "Notes of the Week" (p. 164) it is stated that a plant growing in Mr. Ware's nursery at Tottenham, named at Kew *Nardostachys Jatamansi*, is the Spikenard of the ancients. This is a mistake; the Spikenard of the ancients is a species of Grass called by Linnaeus *Andropogon*, now called *Nardus indica*, the oil from which is called by the natives of India *Rhonsee ke Teel*. The oil is obtained from the spikes, which, when ripe, are cut with a portion of the stem about 1 ft. in length, and are then subjected to distillation. It is a native of many parts of India; those which grow about the Jaum Ghaut are preferred, and are gathered in the month of October, when the seeds forming the ears or spikes have become fully ripe.—G. S. WINTLE, 10, *Paragon Grove, Surbiton*. [The majority of writers on Scriptural Botany consider that *Nardostachys Jatamansi* constituted the Spikenard of the ancients.]

The Striped Musa (*M. vittata*).—This is one of the handsomest of the cultivated species of Musa, and also one of the scarcest. It is, however, grown in quantity by Mr. Ley of the Croydon nursery, where it is highly effective when mixed with other fine-foliaged plants. *M. zebrina* is another beautiful kind, and also a scarce plant. The large black blotch on its bronzy-tinted leaves has a singular appearance, and affords a striking contrast to the striped Musa, with its rich green leaves elegantly variegated with pure white bands.

The Tiger Flower (*Tigridia Pavonia*).—A large space in Mr. Bull's nursery at Chelsea devoted entirely to this gorgeous Mexican bulbous plant now presents a dazzling sight, several hundred flowers opening daily. There is, too, considerable variation in the size and brilliancy of the flowers—so much so as in some cases to justify a varietal distinction. *Tigridias* are plants of the simplest culture, merely requiring to be planted in spring and taken up in autumn and kept in a cool dry place during winter.

The Yellow-flowered Lobelia (*L. lutea*).—Some beds of this *Lobelia* in Messrs. Veitch's nursery at Chelsea are now in fine condition; the plants are covered with bloom, and a few fine days would render them very attractive. The flowers are as large as those of most of the bedding *Lobelias*, and of a bright yellow colour. The only detracting point about it appears to be its somewhat straggling habit, which could probably be improved by hybridising it with some more compact growing sort.

Papaver umbrosum.—This handsome Poppy is the most brilliant sight in Messrs. Barr & Sugden's grounds at Tooting. In general appearance it somewhat resembles the common field Poppy (*P. Rhæas*), but the flowers are considerably larger and of a more intense scarlet, with the addition of a large black shining blotch at the base of each petal, which is the chief point of distinction. At Chiswick, too, it has been the admiration of every one for some time. It is apparently an annual, and is of the simplest culture.

Bravoa geminiflora.—In order to see the full beauty of this fine bulbous plant it requires to be seen in such a mass as is now at its best in the Hale Farm Nursery, Tottenham. It is several yards square, and the brilliant scarlet colour of the long tubular flowers, which are borne in pairs, renders it one of the most attractive plants in this nursery.

The Canadian Elder.—This is an important addition to flowering shrubs. We saw a bush of it at Bitton a few days ago, well furnished with very large spreading heads of white flowers. The bush was not above 5 ft. high. It would be valuable for planting on a lawn by itself, near but not quite on the margin of a shrubbery. This partial isolation would prevent its being overgrown, destroyed, or weakened, as is the fate of so many rare or beautiful shrubs and low trees.

The Californian Laurel.—This handsome evergreen, which helps to make the "foothills" of California look in many cases like a choice pleasure garden in a favoured district in southern England, has formed in Mr. Ellacombe's garden at Bitton as fine a specimen as we have seen of it in its native country. Having survived the late severe winter, when so many plants were killed, there can be no doubt as to its hardiness, in Gloucestershire at all events. It may be as well to state here that this shrub (*Oreodaphne californica*) emits when bruised an odour of a very dangerous character, to the extent, indeed, of producing paralysis in some persons.

A New Feature in Window Blinds.—A novel form of window blind, and one likely to come into extensive use in shading greenhouses, frames, &c., has lately been invented by Mr. Paul Metz, of Hamsell Street, E.C. It is made of small round strips of wood painted green, and so arranged that they form a flat surface, which, whilst it admits ample ventilation and light, effectually shades. It is light and elegant in appearance, and may be folded with as much facility as blinds of calico or similar material, and it possesses the advantage of not requiring to be washed. For offices and dwelling houses such blinds would answer admirably.

LIQUID MANURE AND ITS APPLICATION.

THERE are times of pressure in the lives of most cultivated plants, when a good soaking of liquid manure would be exceedingly beneficial. The lives of fruit trees may be prolonged, and the fruit improved in size and quality, by administering liquid manure just at the time the greatest demand for support arises. Solid manures are not immediately available for the plant's use; time must be given for air and water to do their work and draw out the essences or strength of the manure, and present it in a suitable form for conveyance by the roots to that part of the tree which for the time being is making the greatest demand. This being so, it will readily be seen that, in times of great pressure, liquid manure may render valuable aid. The times when extra help will be most acceptable are when the produce for which the plant is cultivated is undergoing the process of formation and development. A plant or tree grown solely for its fruit will require support most when its fruit is about half-grown, and immediately following the stoning period in the case of stone fruits. A liberal supply of liquid manure will enable a tree to carry a much heavier load with less inconvenience to itself. I believe, in the majority of cases where fruit trees are weakly in habit and growth, with puny fruit and small pale-coloured foliage, that a good soaking twice a week at this season, if the weather be dry, of soot water, will soon put new life and vigour into the foliage and wood of the tree; and without good substantial foliage a tree cannot produce good fruit. Dressings of soot over fruit borders in showery weather, in autumn or spring, will be beneficial; and soot water, clarified with lime, makes an excellent insecticide as well as a valuable stimulant. Water is an excellent carrier; it places within reach of the roots at once anything that is soluble, and thus enables the cultivator to give his crop of fruit, flowers, or vegetables, as much food as they require. And after a season like the present, when the land, both in garden and field, has been literally washed out with the almost constant downpour of rain, the benefits of a liberal application of liquid manure to advancing crops of Apricots, Peaches, and other late fruits, to give size and quality, will be very considerable. Vegetables, too, after the washing the land has had, will appreciate any help that can be given to them in this way. Liquid manure, from its nature, is quick in its action, and need not be given till it is required, or till the plant is in a condition to absorb and assimilate a strong liquid; indeed, this is the only time when liquid manure can be used with profit. To give it to small, young, or weakly plants may do harm, by clogging up the soil, and so rendering the plants unhealthy; but if applied freely to plants having an abundance of roots, its effect will be seen almost immediately. To plants in pots, such as orchard-house trees carrying a heavy crop, some help in this way is indispensable if the best results are to be obtained. And the same remark applies with equal force to flowering plants of a robust nature, such as Fuchsias, Chrysanthemums, Balsams, &c. For Melons and Cucumbers soot water is very suitable; it seems to impart a strength and vigour to the foliage that helps to ward off the attacks of red spider and other pests. The term "liquid manure" may include everything, from the waste of the laundry or dwelling-house to the solutions of highly concentrated manures prepared by the chemist. There is a good deal of highly valuable manure wasted in nearly every house. What becomes of all the slops or house waste? Why, it usually finds its way into the sewer, and in country houses, instead of being arrested by a tank and pump, it is usually conveyed to some ditch to contaminate the atmosphere. The necessity for growing larger crops of better produce, in order to meet foreign competition, will no doubt in time cause more attention to be given to this subject. In the case of any delicate-rooted subject, such as Azaleas, &c., liquid manure, when it is desirable to use it, should be given clear—i.e., free from all earthy matter—containing the essence of the manure; and perhaps in such cases guano, or some artificial compound that leaves little sediment, will be best to use. When sheep or other animal excreta are used for making liquid manure, it is best to prepare it in a tank, or some other large vessel, that has a division with holes in it, shutting off a part of the tank. In this part so separated the manure should be placed, and the water, being poured over it, will percolate through the holes in the partition, carrying the strength of the manure with it in a clear limpid condition, or at least without anything to choke the spouts of the watering pots, or to clog up the pores of the soil and make the plants unhealthy. Soot may be tied up in an old manure bag and placed in the tank, and renewed when exhausted of its fertilising properties. The liquid can be clarified by dropping in a good-sized lump of unslaked lime after the soot has had time to become mixed with the water. I don't know that it is necessary in any case to give exact quantities; but it is best always to make the liquid strong, and dilute at the time of using, giving it weak and often in preference to strong doses. Whenever liquid manure is given to crops in the open air, or to the borders of fruit houses, the surface should be mulched, or, supposing the water has been applied late in the afternoon or

evening, should be freely stirred and loosened upon the following morning. E. H.

—A very common query is, "How can I make liquid manure?" And it is one that is variously answered. The compilation of these liquid compounds must largely depend upon the materials employed—that is, whether they be of some centralised form such as is found in guano, or whether they are of simple raw manures. One of the best and safest fertilisers for pot plants, especially those that are of a robust, leafy habit, such as Zonal Pelargoniums, Balsams, Cockscombs, Gloxinias, Begonias, &c., is made solely from cow-manure, and if a large tank is at disposal for the purpose, a couple of barrow-loads of fresh, raw manure should have applied to it about 100 gallons of water, and should be allowed to stand three or four weeks before using. If the manure be entirely free from straw or other foreign matter there will be no floating particles to choke the waterpot or foul the soil for the plant. After each using some more water equal to the portion taken away should be added, the whole well stirred, and then the liquid will be clear again when it is once more required for use. From time to time a barrow-load of fresh manure may be added, to maintain the feeding properties of the liquid up to the required standard.—A. D.

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CONTRIBUTIONS TO AMERICAN BOTANY.

By SERENO WATSON.

THE ninth part of this valuable work has just reached us. It contains, in addition to descriptions of several newly discovered plants for the most part not yet in cultivation in this country, a complete revision of the North American Liliaceæ which cannot fail to be useful both to the botanist and cultivator, as the descriptions are so lucid and the general plan of arrangement so excellent. Many species and varieties are enumerated in addition to those described by Mr. Baker in his revision of the Order a few years ago in the Linnean Society's Journal. We infer from the descriptions that several of these newly discovered plants are very handsome and that they will prove desirable acquisitions; we therefore hope soon to see them in cultivation. Much diversity of opinion exists with regard to nomenclature, a circumstance to be regretted, as nothing adds more to the confusion that already exists with regard to plant names than the differences of authorities in such matters. In the work under notice inconsistencies in this respect are strikingly apparent; take for instance two or three of the genera to which popular garden plants belong and compare them with those given in Mr. Baker's work. In *Calochortus*, which is essentially a North American genus, Mr. Baker enumerates twenty-one species, three varieties, and several forms differing but slightly from the types. In the recent revision several of these forms are ignored, whilst in others they are made distinct species. *C. Maweanus* of Leichtlin, considered by Mr. Baker as a form of *C. elegans*, is ranked by Mr. Watson as a species. *C. elegans subclavatus* is treated in a similar way, as are also the varieties *C. fuscus*, *C. Weedi*, *C. Tolmiei*, &c. On the contrary several of the species of Baker are reduced to varieties, such as *C. Lyalli* to *C. elegans* var. *nanus*. The new species and those likely to be valuable decorative plants are *C. Porteri*, *C. Kennedyi*, *C. Greenei*, *C. Ghiesbreghtii*, *C. Palmeri*, and *C. Bonplandianus*.

Of new Lilies there are *L. Grayi*, with deep reddish orange flowers covered with purplish spots, from the summit of the Roan Mountain; *L. Parryi*, with pale yellow flowers having segments 3 in. long, found at the San Geronio Pass and San Bernardino County; and *L. maritimum*, which is in the way of *L. canadense*, with reddish orange flowers spotted below. It inhabits swamps from Marin and Humboldt Counties. What is known in gardens as *L. Washingtonianum* var. *purpureum* is raised to the rank of a species under the name of *L. rubescens*, and *L. Roezli* of Regel is placed as var. *angustifolium* (Kellogg) of *pardalinum*, which includes also *L. canadense* var. *Hartwegi* of Baker; *L. pardalinum* *Bourgæi* (Baker) is placed synonymously with *L. canadense*. Though the list of *Brodiaæas* does not contain any very remarkable addition it shows considerable alteration in the nomenclature. *Calliprora lutea* and *Hesperocordum hyacinthinum* are placed here as *Brodiaea ixioides* and *B. lactea*. *B. volubilis* is altered to its original name *Stropholirion californicum*, and similarly *B. coccinea* to *Brevortia coccinea*. The long list of *Alliums* exhibits the alteration in names amongst the popular garden kinds. The beautiful *A. Murrayanum* and *A. Elwesi* are ranked as mere forms of *A. acuminatum*, and *A. Macnabianum* cannot be identified with any indigenous species. The monograph also embraces the *Trillium* family and several of the *Asphodel* tribe, including the elegant *Xerophyllum asphodeloides*, which by the way is changed to *X. setifolium*. W. G.

PLATE CXCIV.

SEMI-DOUBLE VARIETIES OF IRIS KÄMPFERI.

THE Japanese Commissioners for the International Exhibition at Vienna in 1873 brought with them a select collection of plants useful as well as ornamental, and in doing this it appears that they had chosen the best productions to be found in Japanese nurseries—no easy matter, inasmuch as they are dispersed in great numbers, though small in size, all over Japan. One good variety of such and such a plant could only be found in one, and another in another nursery in a very different locality. Nowhere is a rich and good collection of new plants to be found in one place. It is to be regretted that no good botanist made that Vienna collection a special study; horticulturists did not pay much attention to it because the little Japanese garden in the exhibition ground did not contain many of the plants, the great bulk of which was stored up at M. D. Hoobrenk's nursery at Hietzing. Many of these treasures have therefore been lost to cultivation; amongst them, for instance, was the beautiful *Juncus effusus zebrinus*, the pith of the type of which furnishes the wicks for Japanese candles, and the bark that excellent tying material called *Raffia*, now so much in use in European gardens. There were also about 200 varieties of Lilies and quantities of Irises; conspicuous among the former were *Lilium Elisabethæ* (Hort.), which in point of colour surpasses *L. Parkmanni*; and among the Irises some varieties of *I. Kämpferi* were said to be gems of the finest description. In 1874 I bought these Irises without having seen their flowers, and brought them to Baden-Baden. They showed bloom in 1875, and amongst them were two blues of great substance and superb in outline, duplex, and brilliant in colour—one being a pale ultramarine, suffused with white, named *Mikado*, and the other pale indigo, called *Souvenir de Louis Van Houtte*. Two more of these are the varieties figured; the pale lavender one is called *Schöne Wienerin*, and the white with purplish-magenta suffusions *Imperatrix*. This latter is very thick petalled, and having used it as stock for hybridising purposes I have already obtained flowers of similar size possessing varied colours. The fertilised seed produced on an average 10 per cent. of plants worthy of further cultivation, but only one or two were of first rate merit. These Irises like a peaty, moist soil and a warm, sunny situation. I may mention that I have transferred my entire stock of these Irises to Messrs. Barr & Sugden, a firm which I venture to say is now in possession of the finest strain of *Iris Kämpferi* existing in Europe. MAX LEICHTLIN.

GARDENING FOR THE WEEK.

Flower Garden.

Since my last notes under this heading were published, we have registered upwards of 4 in. of rain, and this, accompanied with cold winds, has so shattered the general stock of flowering plants that the bedding season may be said to be at an end even before it has well begun, and the sooner we can become reconciled to forego for this year the pleasure of well-furnished flower beds, the better. Our endeavour must now be to make amends for the lack of flowers by keeping the garden generally in the neatest possible condition; walks must be rolled frequently, edgings cut at least once a fortnight, and lawns kept short and trim, and these, combined with the magnificent foliage and appearance of deciduous trees, consequent on the wet season, will be no mean substitute for the lack of a brilliant parterre. Though this is the season in which to propagate Pelargoniums, obviously, for want of cuttings, this cannot be done, and provision should therefore be made for wintering the old plants, and propagating in the spring. Other cuttings can be had in limited quantities, and a hotbed should be made upon which to strike them. A few store pots of cuttings of each of the following should be got in as soon as possible now: *Coleus*, *Iresines*, *Alternantheras*, *Heliotropes*, *Verbenas*, *Petunias*, *Ageratums*, *Lobelias*, and all plants of a similar character. *Violas* and *Calceolarias* need not yet be propagated, as they strike well in cold frames, if put in any time before the middle of October. Sub-tropical plants, like the general stock of bedding plants, are most unsatisfactory. Castor Oil Plants are amongst those that have made the best growth, and now require stakes, as do also *Eucalypti*, *Wigandias*, and the taller-growing *Solanums*. Keep the surface soil of the beds well stirred, and this will help in some measure to advance growth. What with weeds and decayed flowers, mixed herbaceous borders present a very miserable appearance, and till the weather becomes settled such a state of matters must, of necessity, continue, but the first opportunity should be taken to render them more attractive. Stake *Phloxes*, *Solidago*, *Potentillas*,



Chrysanthemums, &c., and any vacant spots may be utilised for sowing a few hardy annuals, such as *Limnanthes Douglasi*, *Collinsia bicolor*, *Saponaria calabrica*, *Silene pendula*, *Nemophila atomaria*, and *Candytufts*, all of which are perfectly hardy, and will flower very early in the spring, and at a time when other flowers are scarce. —W. W.

Auriculas.—It may be necessary just to say a few words about the autumn-blooming of these. Many of our finest plants of George Lightbody, Lancashire Hero, Beeston's Apollo, &c., are throwing up trusses, and we have no alternative but to pinch the flower-buds off the stem as soon as they can be grasped with the fingers. A new centre will be formed to the plant, but it is not at all likely that the truss produced next spring will be so good as it would have been had there been no autumn truss. Some growers have stated that the liability to bloom in autumn is diminished if the plants are repotted in July or early in August, a statement which my experience does not confirm. This year I had a number repotted late, and there is more autumn bloom amongst these than amongst such as were early potted. The only way to have as little autumn bloom as possible is to keep the plants cool. Place them behind a north wall and do not allow the glass lights to be over them when it does not rain. About sorts difficult to grow a few remarks may now be usefully made. Such kinds as Booth's Freedom, Page's Champion, and a few others are very difficult to manage. The Rev. F. D. Horner with his intense zeal has cultivated them successfully, and Mr. John F. D. Llewellyn, of Ynisgerwn, has been successful in growing Freedom under a system which, as far as I know, has not been tried before; no doubt both these growers will tell us all about the mode of culture, for the true florist keeps no secrets from his fellow-cultivators.

Carnations and Picotees.—It was stated last week that layering would not be done until the end of September, but it ought to be finished by the end of August. We began our layering in earnest and have now finished it. The work was done much more quickly through the use of a new knife sent from Sheffield by Mr. Simonite. We used to cut the stem upward through a joint, but on the new system we thrust the knife through the joint and cut downward. The blade of the knife is very thin, sharp on both sides, and pointed—a real boon to growers of Carnations. Let all the layering be done as speedily as possible, whether the plants have done blooming or not.

Dahlias.—The few warm days which we had about the middle of August greatly invigorated the growth, and now we have abundance of good flowers; but the striking effect which a bed of Dahlias possesses, when seen either close at hand or at a distance, has been sadly marred by the dashing rains which we have had. The plants require constant attention in the way of thinning-out superfluous growths and flowers, and tying up the remaining growths to sticks placed round the main support at the centre of the plants. Earwigs, not liking so much wet as we have had, have not troubled us much, but slugs seem to take their place; these latter must be searched for at night with a bull's-eye lamp and destroyed.

Gladioli.—I wrote somewhat despondingly concerning these a few weeks ago, and they have not improved since. They are now quite done for the season, no spikes of flowers showing themselves. The Gladiolus likes a hot, dry season and, above all, a dry autumn. I am certain that our ordinary English seasons will not do for the finest hybrids of *Gandavensis*; but a fine field is open for the hybridiser who will take the best of these and cross them with a more hardy species. I well remember the late Mr. John Standish telling me, when I was exhibiting scores of fine healthy spikes and growing them by the thousand, "that I would not do so long, that they would degenerate," and they did. In order to keep up a healthy stock seedlings must be raised, and fresh roots must annually be introduced.

Phloxes in Pots.—Messrs. Laing & Co. have shown us the utility of these fine flowers for pot culture by grouping them by themselves. The other day they also had a group of plants at Penge with Phloxes intermixed, and there the effect was much more striking than at South Kensington. Everybody should grow a few for their greenhouses or conservatories in August and September; as they go out of bloom let the stems be cut off and the pots placed out-of-doors. Do not let them suffer from want of water.

Pentstemons.—These are very gay just now, and they do not require more attention than seeing that the flowering stems are tied to their supports.—J. DOUGLAS.

Greenhouse.

Where any inside painting has to be done there should be no delay, in order that the houses may be fit for the reception of the plants now placed out-of-doors. Before housing them the glass should also

be well washed, and where no painting is required the woodwork also, as well as the stages; and any repairs needed should be attended to. Where there are any defects in or insufficiency of piping, it can likewise be best set to rights at this season.

Camellias.—Any of the latest flowered plants which have been necessarily late in making their growth will be now about setting their buds, and in the case of those that want more root room, they should at once be placed in either larger pots or tubs, as by being moved now their flowering during the coming spring will be little affected, and through the autumn they will have time to root into the new soil, which will evidently place them in a much better position for making growth next year than if the potting were deferred until after they had bloomed in the spring, when their roots are in the tenderest condition. Those who have not potted these plants in this stage of their growth will if they give it a trial, I feel convinced, find it the best. Camellias are subjects that require little training, and should not be submitted to the twisting and interlacing sometimes practised, and when they have got into a thin straggling state heading down is often the best remedy. But yet with plants in such a condition any strong branches may with advantage be tied in to a moderate extent when the work is done, so as not to give them a formal appearance; but branches so treated should not be bent down too much, or they generally cease to make further growth from the points, simply pushing out young shoots at the point where bent.

Greenhouse Rhododendrons.—Those who possess a good selection of these, especially such as have been raised from crosses of *R. javanicum*, will find them extremely useful for conservatory decoration during the summer months when *Araleas* and other kindred plants are out of flower. Where wanted they can be had in bloom earlier in the season, but where there is a sufficient number at command, by keeping them cool enough so as to induce late growth, and after their flowers are set by using no more heat through the winter than requisite to keep them from injury, they will continue on blooming until the end of August. The character of the flowers is such, with their many shades of colour from white, orange, yellow, and red to the deepest crimson, together with their capability of lasting long in a cut state, as to make such plants deserving of more general cultivation than they receive. Where there is a large conservatory necessitating the use of considerable numbers of tall-growing subjects with climbers overhead that tend to darken the lower portion where plants have to stand, there are few things that will be found so serviceable as these Rhododendrons, as during the time they occupy a place in such a structure they will not suffer as many subjects do. Plants of these Rhododendrons that flowered early will have made growth and set their blooms, and may be now for some time treated so as to discourage further extension, though there is a peculiarity about several of the varieties, viz., their making growth and setting buds which remain dormant whilst a second growth and more buds are formed that in the spring flower in succession. Those that have bloomed later must be encouraged to make growth and get their wood and flower-buds matured before the season is too far advanced. In addition to their other merits their remarkably easy growth being little susceptible to injury from extremes of a dry or wet condition of the roots that would kill or injure the majority of other plants, and their little liability to the attacks of insects, are all in their favour. Some of the finest examples of these Rhododendrons I have ever met with were in full flower up to the middle of the present month, which will give some idea of their usefulness for the purpose I have mentioned. The fragrance which some of the varieties possess is another matter worth taking into account.

Oranges.—Where these, or any other of the Citrus family, are turned out-of-doors in the summer after their growth is made, it is doubtful whether they are ever benefited by such exposure, and in cold, drenching seasons like the present, especially if the plants are deficient of roots proportionate to the size of the pots or tubs they occupy, they are almost certain to be injured by it, and even with specimens in the best of health I should advise their at once being got under cover, for although they often bear a good deal of indifferent treatment and seldom die suddenly, it is a very common occurrence to see them in a dwindling state, to which death would be preferable. The hard usage they frequently stand is much more an evidence of their ability to struggle under adverse conditions than of their liking such treatment. They come from latitudes too warm to be benefited by exposure to the fluctuations of our fitful climate. Previous to taking them in, it is well to give them a thorough cleaning, especially where affected with scale, as at this time when such as have been thus out-of-doors will have made early growth, and had their wood and leaves hardened up, they are much less likely to have their foliage injured by the sponging and brushing necessary to remove the insects. The removal of the dirt deposited on the leaves by brown scale is essential to keeping them in a healthy condition.

Humea elegans, though generally looked upon as a subject more suitable for planting out in summer than for growing in pots, is nevertheless not surpassed for standing, when fully developed, in conservatories, porches, verandahs, or anywhere where elegant-growing plants are wanted. One thing in its favour often overlooked is that in addition to its distinct habit, its colour is such as to admit of its being placed in close proximity to any other species of plant; but to have it in the condition it ought to be, although its culture is extremely simple, it must never be neglected from its first emerging from the seed-pan up to the time when its inflorescence is fully developed, otherwise the plants will either become stunted if their wants are not supplied in their younger stages, or they will lose a portion of their leaves if not well sustained later on. Plants raised from seed this spring, and moved from the seed-pan into small pots, will soon need another shift; if they have been well attended to they will be large enough now to move into 6-in. pots in which to remain through the winter. Good ordinary loam thoroughly enriched and made porous is all that is required. A cold frame placed on a bed of damp coal ashes is a much better position for them than in houses on dry stages, which tend to the increase of red spider, to which the plant is very subject. Water, air, and frequent examinations to see that the plants are free from green fly and red spider is simply all the attention they require.

Cinerarias.—The first batch of these raised from seed, so useful for flowering about the close of the year when the blue colour they afford is scarcely attainable in anything else, must now receive every attention to have them in blooming condition at the time needed; the cool, damp, dull summer has been much more favourable to their growth than it has to the generality of plants, and in several cases that have come under my notice they are unusually big and strong, and to support the extra large foliage they have upon them it will be necessary to give them pots an inch or so larger than ordinary, or to supply the deficiency by more manure water than usual, for if they suffer through insufficient nutriment the lower leaves are sure to go, the certain result of which is that the heads of flower are never more than half the size they otherwise would attain. Should the weather come hot and dry during the next month it will still be necessary to shade them slightly from the sun during the middle of the day. The later sown stock, or plants raised from suckers where the old stools have been planted out, should be potted off and encouraged to make growth so that they can be transferred to their blooming pots before the autumn is too far advanced, for unless they get their roots fairly established in the soil before winter they can never be expected to do well.

Primulas.—Plants from the earliest sowings of these, if not already in their flowering pots, should at once be transferred thereto, using every means to get them on in size and strength. Shallow frames where they can be elevated so as to almost touch the glass will still be the best place for them until considerably later on, and if the frames in which they are grown are placed so as to be under the full influence of the sun, continue to shade them slightly for a few hours in the middle of the day. The object with these plants should be to get them as stout and short in the leaf-stalks as possible, as when so grown they are much less liable to damp; I have found nothing more conducive to this stout condition than for the next month taking the lights off them altogether during the nights when there is no appearance of heavy rain. Plants from later sowings intended to flower later in the spring and yet in small pots should have every attention with a view to getting them in condition for moving into those they are to bloom in a few weeks hence.

Chrysanthemums should now be securely staked, for if this be neglected, as their shoots get heavier, they are in danger of being broken. Whether the pots be plunged or not, they should be turned round every ten days, to prevent rooting through the pots, for if this is not attended to, the roots that find their way through the bottoms of the pots naturally get the strongest, leaving those confined within less active, and whatever progress is made in this direction has afterwards to be sacrificed. They will be benefited by manure-water regularly, still keeping on syringing overhead on the evenings of warm days, which will generally be found sufficient to ward off the attacks of aphides. A good look-out must be kept for the little grubs that prey upon the leaves, burrowing between the upper and under cuticle like the Celery fly, and which, if left uninterfered with, will in a few days destroy a considerable amount of foliage.

Tropæolums.—The different varieties of these belonging to the Lobbianum section, so useful for flowering through the winter with a little warmth, are better when the plants are kept out-of-doors during the summer time, and loosely trained to a few sticks inserted in the pots. By this means stout, vigorous, pyramidal specimens can be had in much better condition for producing flowers in winter than when kept on growing under glass during the summer. Plants that have been treated as recommended, and, in comparison

tively small pots, have been assisted with a little manure-water, will be in a state to do good service through the winter, if subjected to a little dry warmth in a good light house or pit; but they are very impatient of a low temperature, and they will not be safe out-of-doors in the nights beyond the middle of the coming month.

Tree Carnations.—Give these the advantage of a good light position where they will be exposed to all the air and sun they can get. In the case of old plants that after blooming were shortened back, shaken out, and repotted, some manure-water from time to time will greatly assist them. Use sufficient sticks to keep their shoots supported in an erect position, but not too closely drawn together.

Salvias.—The kinds intended for autumn flowering, as well as those to succeed them in winter and spring, should by this time have their pots tolerably filled with roots, and from their naturally strong vigorous habit, they with difficulty retain their lower leaves, or keep in a healthy green colour, unless they are assisted with liquid manure; but in this it is necessary to proceed with caution and not to apply it so strong or so often as to excite an undue amount of growth, as after this time it is better to treat the plants with a view to maturing the growth which they have already made than encourage its extension further.—T. BAINES.

Hardy Fruit.

Although in this district Pears are tolerably plentiful, they are so small, and the season so advanced, with as yet no signs of real summer, that it is a debatable question as to whether they will ripen at all. Certainly the latest varieties will not, but the early kinds may, though even these seem hidebound and do not swell kindly. Under the circumstances it will be advisable to at once pull off all fruit not likely to ripen, in order to give the trees a greater chance of bearing next year, when it is to be hoped that the weather will be more propitious. Early varieties that may ripen should have all the help that can be given them, such as fully exposing the fruit to atmospheric influences by cutting, or pinching off any shoots that intercept the full play of light on it. Such operations are also necessary in order to ensure the full maturity of next year's fruit-bearing wood, for on this also depend our hopes for another year, and these, unfortunately, are not very bright, seeing that wood growth is more vigorous than usual, and no sunshine to consolidate and ripen it. To a certain extent the foregoing remarks concerning Pears are applicable to Peaches. On some of the late kinds the fruit is still so puny that it is impossible for it to ripen, and it might, therefore, be sacrificed at once to afford a better prospect for next year. The wood on all the trees should now be kept well thinned out, and fresh growth, which is more profuse than usual, should be constantly stopped back. Apricots are making extra fine growths, and advantage should be taken of this, especially in the case of all old trees with ugly spurs, to lay in all the best shoots to replace these spurs at the winter pruning. The dying off of the branches, a disease peculiar to the Apricot, has been very prevalent this season. I know of no real preventive, but believe a severe check or strain of any kind tends to induce it; and my theory regarding its prevalence this year is that the severe and long-continued frost and water-logged state of the ground are at the bottom of the evil. In every garden where Apricots are valued there should always be a relay of young trees on hand to take the place of any that thus succumb. Early Orange Apricot, though generally worthless, is this year large and passable in flavour, but, taking all points, Moor Park is the best that can be grown, and a sure fruiter. The rain is causing some of the fruit to crack before it is quite ripe, and therefore it should be gathered before it reaches that stage, and if placed in a warm Vinery or greenhouse, it will there ripen off perfectly. All early kinds of Apples and Pears are improved in flavour, and keep longer if gathered a few days prior to full maturity; some kinds are now ready and should be examined with that intent. Morello Cherries should now all be gathered, the trees thoroughly cleared of vermin, and the new shoots of the current year nailed or tied in. Established Strawberry plantations should have all the runners cut off, and the ground between the rows "pointed" over, and afterwards thickly mulched with good manure. Newly-planted plots should also have the runners persistently pinched off. The plantation made with the earliest forced plants may be expected to fruit freely this autumn, and for these a layer of clean straw to keep the fruit clean should now be applied. The ligatures of grafts ought now to be removed, and the shoots produced by the stocks should be kept rubbed off. In some instances, such as where the union has not been properly established, a temporary tie may be requisite, in order to prevent injury from wind-waving.—W. W.

Extracts from my Diary—September 1 to 6.

FLOWERS.—Shifting Cyclamen bulbs into flowering pots. Potting Cinerarias out of 3-in. pots into 5-in. pots, in which they are to flower. Putting in cuttings of Violas in border for spring bedding.

Re-arranging plant houses. Putting in cuttings of Viola under north wall for spring bedding. Cutting Lavender for distilling. Putting in cuttings of Pelargoniums and Fuchsias for winter flowering. Tying shoots of Maréchal Niel Rose in cold house and loosening buds on Briers. Putting in cuttings of Heliotrope and Ageratum for stock.

FRUIT.—Gathering Williams's Bon Chrétien Pears and Keswick Codlin Apples. Cutting out wood from Figs in order to give the fruit more light. Gathering all ripe Apples and pulling runners off Strawberries growing for forcing. Tying and stopping Melons for late use. Gathering all ripe Early Beatrice and Royal George Peaches, Victoria Nectarines, Cellini Pippin Apples, and Victoria and Prince of Wales Plums for preserving. Gathering all ripe Peaches and Beurré d'Amanlis Pears. Cutting a few berries out of late Grapes where too thick. Tying up shoulders of Trebbiano Grapes. Gathering Washington Plums. Removing all runners from Strawberries for forcing, and giving them a little more room where crowded to admit air and light.

VEGETABLES.—Hoeing ground between growing crops of Cabbages, Cauliflowers, and Lettuces. Getting old bed out of Cucumber house and turning and mixing manure and leaves for next bed for winter Cucumbers. Tying, training, and stopping Tomatoes. Planting out Bath Cos Lettuces and more Endive for winter use. Getting in hotbed in Cucumber house for winter Cucumbers. Clearing up walks, and sowing Mustard and Cress. Mixing loam and leaf-mould in which to plant Cucumbers. Pulling up Carrots that are running to seed. Harvesting Onions and storing them on stages in cold houses to dry. Storing Regent Potatoes and covering them with straw. Gathering Tomatoes. Earthing up Celery. Clearing Peas off ground and manuring it for winter digging. Digging Couch Grass out of Asparagus beds and giving them a good coat of ashes and rotten manure preparatory to trenching. Cutting out useless growths from Tomatoes and also a few leaves to ensure the fruit ripening. Planting the following sorts of Cucumbers for winter, viz., Hedsor Prolific, Telegraph, and Duke of Connaught. Spawning first Mushroom bed.—R. GILBERT, *Burghley*.

THE FRUIT GARDEN.

SUPPLEMENTARY FRUIT REPORTS.

Wierton House, near Maidstone.—Strawberries in the garden here have been a very heavy crop, the best kinds being Keen's Seedlings, Princess Alice, Wonderful, Vicomtesse Hélicart de Thury, Trollope's Victoria, and Elton Pine. Raspberries are also a heavy crop. Red and White Currants are very plentiful; Black rather thin. Of Gooseberries we have a heavy crop with the exception of the Yellow Rough, which is nearly a failure; some of the large Lancashire sorts have produced heavy crops, but the foliage of all kinds has been much injured by mildew and insects. Indeed, it is falling off fast, and in a few days the trees will be bare. The fruit, being thus exposed, has commenced to shrivel. Peaches and Nectarines are a light crop, and the trees are unhealthy. Of Apricots we have none. Most kinds of Plums are light, and the fruit is still dropping off and the trees gumming. Cherries are a very light crop and spotted. Hardy Grapes must be a failure; they are now shedding their bloom. Figs promised to be a heavy crop, but most of them have fallen off, and they still continue to do so. Pears are a light crop and the fruit is still falling. Apples the same; Winter Hawthornden and Cellini are producing the best crops. In the orchard the best crops are Graham's Pile Russet and Loddington Seedling, a kind which must become a general favourite for market purposes. Other sorts are bearing light crops, and the ground is strewn with fruit. In plantations, where fruit is grown for market, Gooseberries and Currants have been plentiful in some cases, in others a light crop. Plums of all kinds, with the exception of Damsons, are a thin crop. Cherries very light. Nuts promised to be good, but they are suffering from too much wet. Apples of most kinds are light crops. Altogether the fruit crop will be very deficient in quantity. The soil here is a light sharp loam on the Kentish Ragstone, sheltered by timber trees and woodlands.—W. DIVERS.

High Grove, Pinner.—The fruit crops in this neighbourhood are in most cases much below the average. Gooseberries and Red and Black Currants rotted on the trees. Of Strawberries we had good crops, but they also rotted from want of sunshine. Raspberries have in most cases been good this season but very watery and deficient in flavour. Peaches and Apricots are almost a failure, and the trees are in a most deplorable state from blight. In orchards Plums are a failure in this neighbourhood; also the Damson crop,

and Apples in most places are quite stripped of their foliage by blight. Court Pendu Plat is one of the best varieties for garden culture, as it flowers much later than any other, and is always a sure cropper; it does for cooking, and is a most excellent late dessert middle-sized Apple. The Wellington is quite a failure hereabouts this season. It is usually one of the best Apples which we have and one on which we most depend. It is a good market Apple, and therefore it has been largely planted in this neighbourhood. Pears are in most cases fair crops, but so late that I am afraid they will not come to maturity. This district is a very late one in cold, wet seasons, its subsoil being London clay, and in many cases badly drained.—G. BRUSH.

The Deepdene, Dorking.—The fruit crop in this neighbourhood is in general under the average. Apples, with the exception of Lord Suffield, Keswick Codlin, Dutch Codlin, and Hawthornden, are very thin; those mentioned are bearing a very full crop. I have also seen some well laden trees of Tower of Glamis in this district. Pears of all sorts are a heavy crop except Marie Louise, which are thin this year. Apricots a fair crop. Peaches moderate but very late, trees healthy. Of Plums some varieties have borne well, others thin; on Rivers's Early Prolific, Blue Perdrigon, and Prince of Wales there are heavy crops, others moderate. Strawberries and small fruits have been plentiful and good. Figs are a heavy crop, but they may not ripen. Cob Nuts are very plentiful, but Walnuts are scarce. Cherries, with the exception of a few Black Tartarian and Morellos, are a total failure.—JOHN BURNETT.

Wilton, Salisbury.—Of Apples we have a bad crop; trees and fruit much blighted. Apricots, fair crop; trees protected in spring by three thicknesses of ordinary 1-in. mesh netting. Cherries good on walls protected by nets; none on pyramids and bush trees protected with fir branches. Of Currants we have a fair crop. Figs moderate, trees protected with nets in spring. Gooseberries moderate. Mulberries a fair crop. Nectarines and Peaches, fair crops; trees protected by canvas blinds on rollers; leaves much blistered in spring. Of Nuts and Filberts we have good crops. Pears moderate; trees and fruit much blighted. Plums moderate on east wall, protected with nets; none on pyramid and bush trees. Raspberries are a fair crop. Strawberries abundant. Walnuts a bad crop. Owing to the excessive amount of rain, and the long continuance of cloudy weather, fruit trees of all kinds present a yellow and sickly appearance. A large percentage of the fruit is blighted, and dropping off the trees. Unless fine weather sets in shortly I fear the young wood will scarcely have time or heat sufficient to ripen. Since January, 27 in. of rain has fallen here, and with the continued low temperature and absence of sun this has been the most unfavourable year as far as gardens are concerned that I have known.—T. CHALLIS.

Wortley Hall, Sheffield.—Everything on the farm and in the garden in this district is a month or six weeks late. Wheat and Barley are only in flower or coming into flower, and in the garden we are still gathering the Black Prince Strawberry, which is generally over by July. Apples, Pears, and Plums are a poor crop, and not likely to ripen perfectly. Cherries are good, and all small fruits are most abundant, Strawberries and Gooseberries particularly; we have seldom had such a crop, though many Strawberries have rotted. Under glass crops have done better than the character of the past year would lead one to expect. Grapes are good and well finished; late crops and Muscats promise well, and are colouring as well as ever we remember them to have done. Peaches are plentiful, and also Figs. Melons have been fine and crops good.—J. SIMPSON.

Huntroyde, Burnley.—Small fruits, such as Gooseberries, Currants, Raspberries, &c., are abundant here, and the fruit fine. Strawberries, though a good crop, were inferior in flavour, and a great part rotted on the ground. Of Apples we have good crops on garden standards; in orchards they are a failure. Being exposed to cold east winds the young wood did not make a fair start ere it was destroyed by caterpillar, which also destroyed the fruit just at the time when it was setting. Pears on south walls are a fair crop, but I am afraid none of them, not even the Jargonelle, will reach their average size; they are now small and look starved, though the trees are making very fine growths. Plums are good on south walls, but moderate on east; none upon north-west aspects. Cherries are good, especially the Morello. Apricots and Peaches are not grown outside here, but we have good crops of them in a glass case; the fruit is, however, very late, and does not look like ripening even there. In our early houses the crops have been good, but not so good in quality as usual. Nuts are abundant, but not filling well. All kitchen garden crops are very late, and less productive than usual. The Potato crop is inferior and showing signs of disease. Every crop is at least a month later this year than usual, and some will not do any good at all.—H. LINDSAY.

MELONS IN 1879.

ALTHOUGH this has by no means been a favourable season for the production of high flavour in Melons, owing to the small amount of sunshine which we have had, a few remarks on varieties that have proved themselves to be well worth growing may be interesting. Melons form no small help in a season like the present to replace fruits that are either entire failures, or so late in coming to perfection out-of-doors as to be of little service. Our earliest crops of Melons grown in pots on the back shelves of Cucumber houses and Pine pits included Cox's Golden Gem, a very beautiful, medium-sized Melon, of a bright golden colour, finely netted, and of good quality; East-nor Castle Green Flesh, always good, if true, rather a tender-skinned variety, liable to bruise, if roughly used, in travelling; Heckfield Hybrid, a good, well-known sort growing to a good useful dessert size; Gilbert's Victory of Bath, a deliciously flavoured green flesh kind, and a heavy cropper; Queen Emma, a good variety, flesh almost white, very melting and juicy, but rather thin-skinned and tender.

For late use we have now ripening, in addition to the above, good crops of Dell's New Hybrid, a fine-looking Melon, carrying a heavy crop, and amongst old sorts Sheriff of Haddington, a good cropper, and the fruit of serviceable size. For pits or frames where but little heat is available Mouro's Little Heath is still one of the best, and if afforded good treatment under glass, with aid from artificial heat, it grows to a large size, and is excellent in flavour. There are many other equally good sorts, but in the case of a fruit so easily hybridised as the Melon, it is difficult to keep them good and true; in fact, the only way to keep any really good sort distinct is to grow that alone. There is little gained by multiplying varieties, as even the best are greatly dependent on the manner in which they are cultivated and the time at which they are cut, to catch them in their highest state of excellence. Although we grow Melons in pots for our earliest crop, I greatly prefer planting them out in a good ridge of soil. The top spit of loam is what we rely on, chopped up moderately fine, and packed firmly; in this they make vigorous growth, and when they have reached the desired height I pinch out the leading shoot, and on the laterals fruit will show in abundance; enough for a crop should, as nearly as possible, be set at the same time, for if one or two fruits set and swell in advance of the rest they will rob the latter of all support, and they will turn yellow and drop off. With a good bed of soil and room for the foliage to expand, a Melon plant will ordinarily perfect from four to six fine fruits fit for any dessert table.

J. GROOM.

DYING OFF OF APRICOT BRANCHES.

THIS malady is, according to my opinion, ascribed to causes that have little or nothing to do with it, that is, so far as bringing it about is concerned. The trees, like everything else that has been laid prostrate or weakened by disease, are unable to bear up when the strain comes, and soon show signs of distress. This occurs when they are taxed with a heavy crop of fruit, which their enfeebled health prevents them from carrying, or the same thing occurs if the weather is excessively hot and dry, as then there is more evaporation going on through the leaves than can be maintained from below. This apparent failure on the part of the roots is owing to the greater portion of the sap-vessels in the bark being injured by frost or cold in the spring, which not only impedes the circulation at the time, but causes gumming through extravasation, or a thickening of the fluid, which, instead of effecting its escape, should have gone to build up and form fresh layers of wood. After mild winters and genial springs gumming is never seen to any extent; but let any one go where he will in seasons like the present, trees are found in a deplorable plight, and no wonder, as from their tender nature and the early period at which they are on the move, the whole system must perforce get a chill that would of itself bring about constitutional derangement, although its effects would not be immediately apparent. From close observation, however, I am persuaded that this is when the mischief is done, and once the sap vessels are ruptured, the whole constitution of the plant is disorganised and thrown out of gear. Where trees escape frost, branch dying is almost a thing unknown, a remarkable instance of which I could have pointed to some years back, where an Apricot tree was growing on the south end of a house, under overhanging eaves, so as to get a good deal of warmth from the kitchen chimney and other flues that passed up the inside of the brickwork. This tree never failed to bear a heavy crop, and I do not remember to have ever seen a dead spur or branch in it, although at the time, judging from its stem, it must have been of great age, as it was very large, and had a top that covered at least 200 square feet. The losses amongst Apricots will be great this year, and it will be found that the colder the district, or the more exposed the position, the more they have suffered, not only in loss of fruit, but of limb. Although well protected by means of copings, fish nets, and evergreen branches, ours are reduced to about half the

size they were, whole faggots having been cut out of them, and barrow-loads of spurs wheeled away; but as this was done early, I am glad to say they have all broken well again, and are fast filling the gaps. Half measures are no use, the knife is the only remedy, and the sooner the diseased parts are got rid of the better, for they only carry the decay further, or prevent young growth forming in positions where it would be available to take the place of injured branches. If left, the affected branches are sure to go, and the first loss is generally the least sacrifice.

S. D.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

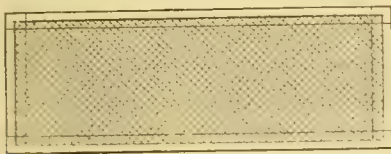
Stone's Apple, or Loddington Seedling.—It is singular how some really first-class kinds of fruit remain only locally known for years, while other greatly inferior kinds in a short time overrun the country, and, in the majority of cases, as quickly disappear. Stone's Apple is not a new kind, for the produce of trees of this variety growing in the parish of Loddington, on a fruit farm recently occupied by Mr. Stone, was so highly prized and sought after in London markets, that for want of another name it was called Stone's Apple, or Loddington Seedling. It was, I believe, shown in London, and granted a certificate in 1877; but the best of all its certificates would be for any intending Apple planters to come and have a look into the orchards in this neighbourhood, when, although the season is called a failure as regards Apples, this particular variety will be found to be invariably carrying a large crop of fruit superior in every respect to that of the Keswick Codlin. Stone's Apple is much larger, and yellowish-green in colour, with a pale red flush. It is of very stiff growth, and requires scarcely any pruning; the foliage is large, and the whole energy of the trees seems concentrated on the formation of flower buds. I may mention that in this locality rows of large orchard trees have been headed back and re-grafted with this variety, and thus treated they speedily form fine heads. Although generally grown in orchards as a standard, its habit of growth and bearing eminently fit it for a dwarf or bush tree, and I feel sure that, when once it becomes well known, it will supersede many of the existing kinds. It is one of the earliest of Apples, being now (middle of August) the largest fit for kitchen use, and it would keep in good condition until November. It is the very ideal of a market or kitchen garden Apple, as it fills the basket quickly, and in this exceptional season, when the remnant of a crop is not swelling at all kindly, at least half of the sorts being deformed, and looking stunted and misshapen, and dropping off prematurely, this variety stands out in bold relief as the one bright spot in our Apple orchards. I see no reason why it should not be equally satisfactory in other localities as it is here. As regards the season, we have more fruit trees without a fruit on them than we have carrying a crop, yet those who are the least versed in pomology look upon the Stone's Apple as such a certain cropper, that they think it not at all singular that all the trees of that variety should be carrying a good crop while others are bare. I would strongly recommend any one wishing to give this fine variety a trial, in addition to planting young trees of it, to try the Kentish plan of grafting a vigorous but unfruitful tree of some other sort with this kind. It is easier to do this than to root-prune.—J. G., *Linton*.

Management of Plantations of Black Currants.—Select a spot with a cool moist bottom, wheel on to it a liberal dressing of manure—and a somewhat wide definition may be given to this term, as everything calculated to improve or enrich the land will be useful. It is well to prepare the land thoroughly before planting, as, on suitable land, Black Currants may occupy it profitably many years. The soil should be deeply worked, and the manure well incorporated. With other kinds of bush fruits it is necessary to mound them on single stems, and prevent the formation of suckers; but with Black Currants this rule need not be so rigidly enforced. For a plantation of so permanent a character, 6 ft. square is not too much space for each bush to occupy, especially if they are permitted by the formation of suckers to become virtually what nurserymen call stools. There may be objections to these kinds of bushes, but I know they are exceedingly fruitful, and the fruit is as fine as that produced by plants confined to a single stem; and the way the bushes renew themselves from the base seems to add to their vigour. But on this matter people may hold different opinions, without saying or even supposing that those who differ from them are wrong. I have seen amazing crops of fruit grown on those old bushes that appear to be a cluster of stems annually renewable from the base. The plantation will be best in an open situation, although fairly good results are obtained in partially shaded positions. Early in May mulch the ground between and around the bushes thickly with littery manure. The first season after planting cut well back, to get a strong base. Afterwards thin out, but do not shorten; and as years pass, and the bushes become large, cut out a number of the old shoots down to the

bottom annually to make room for new growths, as it is these latter that bear the best and finest fruit. When the plantation settles down into a free-bearing condition, only surface culture with fork and hoe will be required. Black Currants should be gathered as soon as ripe, as the large berries soon drop when fully ripe.—E. H.

FRUIT NETS.

IN answer to Mr. Groom's enquiry, allow me to say that he would probably find linseed oil (raw or boiled) a good preservative of fruit nets. I have a hemp fly-line which has been in use at least thirty years, perfectly sound and good, which was when new steeped in linseed oil, and then stretched and dried in the sun. I have also a landing net similarly treated, which has been in use some years. The net should lie in oil, or in an oily state, for a day or so, and should then be wrung out, so as to free it as much as possible from the oil; afterwards it should be stretched out to dry in the sun for several days. I have, however, adopted a net covering which is self-preserving to a great extent. I fix the net on frames, 6 ft. by 4 ft.,

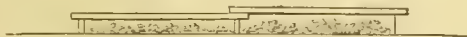


Net-frame.

made of good deals, 4 in. by $\frac{1}{2}$ in. A galvanised wire rod (16th of an inch) is run through the meshes to attach the net to the frame all round. The ends of these rods are turned into the wood to prevent them from slipping, and then they are fixed to the frame, at intervals of about 12 in., by thin wire loops put through a hole made with a sprig bit, and clenched on the under side. The frames thus made can be fixed over a Strawberry bed by resting one end on a thin pole, supported by forked sticks up the centre of the bed, thus—



or laid flat on narrow boards supported on edge round the bed and up the middle by pegs, thus—



Such frames are also useful for covering wall trees in the spring and Currant trees when the Strawberries are over. They take up little room when put away, and cannot be thrown aside damp, probably in a heap, when done with, as is the fate of a good deal of netting; and when wanted again found to be rotten. Such frames can, of course, be made to any size; but dimensions which will render them available fixed in any way would be best. V.

The Hailstorm Relief Fund for 1879.—A public meeting was held at the Greyhound Hotel, Richmond, on Monday evening, August 25, for the purpose of raising a fund for the relief of sufferers through the recent hailstorm. Mr. John Fraser, Lea Bridge Road Nursery, was in the chair, and the meeting was numerously attended by representatives from all the neighbourhoods affected by the storm. Statements having been laid before the meeting showing the extent of the damage sustained, and the urgent need that exists for raising a relief fund, the following resolutions were unanimously passed: "That this meeting is of opinion that, in consequence of the enormous damage caused by the destructive hailstorm of August 3rd, in Richmond, Twickenham, Teddington, Brentford, Isleworth, Ealing, Kew, Kingston, Surbiton, and their neighbourhoods, there is great and urgent need for the formation of a substantial relief fund to be distributed among such market gardeners, nurserymen, and florists as have been large losers by the storm, and who have little or no means to repair their grievous losses." "That a relief committee, with power to add to their number, be formed forthwith, and that such committee be empowered and requested to take the necessary steps towards making a widespread appeal for funds, to examine

and assess all cases for assistance, and to distribute the funds accordingly. During the discussion which ensued on the consideration of these resolutions, a great desire was expressed that all merely local relief funds should be merged into a general relief fund, with its head-quarters at Richmond. The Rev. G. W. Hawtayne, vicar of Whitton, handed over to the central fund the proceeds of a collection at Whitton Church, made for the sufferers; and the Rev. H. R. Limpus, Vicar of Twickenham, promised the proceeds of an offertory at Twickenham Church, and said he would advocate the claims of the fund from his pulpit. He hoped other clergymen in the affected districts would adopt a similar course. A large and influential committee was appointed: Mr. W. Pennyfeather, Manager of the London & County Bank, Richmond, was elected Hon. Treasurer; and Mr. Richard Dean, Ranelagh Road, Ealing, and Mr. Edward King, *Richmond and Twickenham Times Office*, King Street, Richmond, Hon. Secretaries. The sum of £350 was announced as having been already paid or promised to the relief fund. Contributions can also be paid to the credit of the fund at the London & South-western Bank, Ealing.

TREES, SHRUBS, AND WOODLANDS.

WOODLAND WORK FOR SEPTEMBER.

DURING the present month such progress should be made with the general work of the woodlands that towards its end and early in October the forester may be able to give his undivided attention to planting operations. To enable him to do this and to bring the land into a proper state for the reception of the plants, draining, trenching, ditching, and pitting should at once be finished. Pruning should now be brought to a close, and all thinnings removed from the falls. The removal of large evergreens should be finished without delay. Watering, up to the present time, has not been required, and it is to be feared that the cold and sodden state of the land will be unfavourable to late transplanted nursery stock, and, as much of the young wood will not mature upon very wet soils, the plants will be all the more liable to be cut back by spring frosts.

Go carefully through plantations formed last winter, removing dead trees and preparing the ground for filling up. An examination of the plants and the land may to some extent reveal the causes of failure—whether improper planting, too much pruning, a redundancy of moisture, or unfavourable soil. Layers may now be made from coppice stools where the land has been previously loosened and prepared; these should be firmly pegged down and covered with a few inches of soil. Layering may be practised upon the Oak, Ash, Spanish Chestnut, Birch, Alder, Elm, Lime, Plane, Poplar, and Willow. When carefully performed it affords a cheap and expeditious method of filling up thinly stocked coppices; and the connection which is for some time maintained between the layers and the parent stools enables the former to be pushed forward upon rocky soils where newly planted trees would either fail altogether or make very slow progress. Such shoots should be selected as have completed their second year's growth; and if it be not intended to layer again from these, they may be severed from the stools at the end of either the second or the third year, according to the quality of the soil. In good land the shoots from layers will sometimes attain a length of upwards of 4 ft. during the first year.

Lay out and allot coppice falls for the coming season, as the first in the market generally command the highest prices. Small lots by inviting more competition generally command relatively higher prices than large ones. While the weather continues open wash young trees in situations where they are liable to the attacks of hares and rabbits. Towards the end of the month collect the seeds of Birch, Maple, and Sycamore. Those of the Birch, Berberry, and Wild Cherry may be sown at once, and the Maple and Sycamore may be stowed away for spring.

If the ground has not yet been prepared for the smaller evergreens these should now be raised and pitted or planted temporarily in lines upon fairly dry or warm soil ready for after removal. Such plants may be afterwards removed late in the season with greater safety than such as have not been previously lifted.

In the nursery continue to dig between the rows, and clear off weeds by hoeing and raking, removing them to the rot heap, and afterwards treating them with some hot lime. Plant out evergreen hedges—Holly, Yew, Privet, Laurel—and transplant Evergreen Oaks and seedling Hollies.

Where accidents to trees have been occasioned by the late high winds (and these are numerous in consequence of the great weight of foliage and the poverty of the sap), prune off the stumps close to the trunk, and apply a plaster of coal tar or lime and cow manure. All

dead and decaying wood should be removed, and the stump or the wound upon the trunk should be thoroughly dried out before anything is put upon it.

A. J. BURROWS.

Pluckley, Kent.

THE ATHOLE WOODS.*

THE members of the Scottish Arboricultural Society had their second annual excursion on the 7th and 8th inst., when they visited these famous woods. The meeting place on the morning of the 7th was Dunkeld. At the head of the party, his presence warmly welcomed by every one, was Sir Robert Christison, whose memories of these woods, as he himself mentioned, stretch back with perfect distinctness to 1826. After breakfast, the party, under the conductorship of Mr. McGregor and Mr. Fairgrieve, started for the woods. In passing Little Dunkeld Bank, Mr. McGregor directed attention to several fine specimens of *Pinus Laricio* growing alongside the Scotch Fir, from which the *P. Laricio* stretched away with a markedly superior growth. In no more satisfactory way, indeed, could the members have been afforded an illustration of the advantages that attend the cultivation of this recently-introduced Pine, which recommends itself to foresters by its quick growth and its remarkably clean timber.

Having entered what is called Ladywell Wood, the party was in the midst of the far-famed Athole Forests, which, as is well known, owe their celebrity to the remarkable enterprise of John, the fourth Duke of Athole, whose work is ever an interesting subject for arboriculturists. On succeeding to the estate in 1774, it is stated that he found little more than 1100 acres of ground planted, while before his death, in 1830, the plantations extended over 16,500 acres, there having been planted in this period between 27,000,000 and 28,000,000 trees. In early times Scotch Fir and Oak were mostly used; but successful experiments having been made in the introduction of Larch, of which sixteen plants were obtained in 1738, by the then possessor of the ducal estates, from Mr. Menzies of Culldares, who had brought a quantity of specimens from the Tyrol, the duke was induced in 1786 to cover the rocky heights of Craigiebarns, to the extent of 35 acres, entirely with this species of tree. So satisfactory did this plantation prove, that before his death the duke had put 10,000 acres under Larch, using for this purpose nearly 13,000,000 plants, besides 1,250,000 of other trees. The present duke has planted fully 3000 acres, principally Scotch Fir, mixed with Larch and Spruce. In the course of the stroll through Ladywell plantation, an opportunity was afforded of noting what was apparently abundant confirmation of the belief generally held by foresters, that Larch planted as a second crop on ground on which the same tree had immediately before been raised, does not as a rule succeed.

After passing through the Hermitage coppice a short halt was made, to admire the magnificent view from the Hermitage Bridge. At the north end of the bridge a very fine Cedar of Lebanon was to be observed, and within 30 yards of it is a particularly good specimen of *Abies canadensis*, or Hemlock Spruce, measuring 10 ft. at 4 ft. from the ground, and 80 ft. high. It had originally been double, but one of the limbs has been broken off. A peculiar interest attaches to this tree, on account of the influence it has had in affecting the price of Oak bark, and consequently the price of leather, in this country. The tanning properties of the bark of this tree are so valuable that in America it takes the place of Oak, and is so abundant there that it very sensibly affects the price of leather in this country, the bark of the Hemlock Spruce being sold at something like 15s. per ton, compared with £6 for Oak bark. On entering Craigvinean, "The Craig of the Goats," Mr. McGregor called attention to the remarkable way in which Scotch Firs of a few years' growth were dying off. The reason of the decay he could not, he said, explain; but Mr. Sadler discovered, on removing a piece of bark, that between that and the wood a small insect had bored its way through the formative tissue, leaving very distinct traces of its progress. Coming down by the banks of the Tay, attention was called to a fine row of Spanish Chestnut trees, one of which had a beautiful spiral habit of growth. The twist showed no fewer than six distinct spirals, each of them traceable to the top of the tree. The Tay was next crossed, and the party entered the grounds of Dunkeld House. On the way to the American Gardens some splendid old native Scotch Firs, about 150 years of age, were noticed. The bark of all of them was perfectly clean, and had the curious lizard-like scales peculiar to the old indigenous Scotch Fir, which may be accounted for by the fine gravelly soil on which they stand affording good drainage, and keeping the trees in excellent health. One of these trees, taken at random, measured 10 ft. at 5 ft. from the ground. This, however, is not so large

as one met with at the Hermitage, which measured 11 ft. 6 in. at 5 ft. from the ground.

About three o'clock the party arrived at the ancient Cathedral of Dunkeld and after a halt they were photographed in two interesting situations, one of them being on a piece of rising ground under the shade of one of the finest specimens in Scotland of the European Lime (*Tilia grandiflora*), measuring 10 ft. 10 in. in circumference at 5 ft. from the ground. The second photograph was taken in front of the grand old parent Larches. The company afterwards paid a short visit to the New House Park, where amongst the measurements made was a Larch, described as being perhaps the finest specimen in the country. It was 11 ft. 2 in. in circumference, at 5 ft. above the ground, 110 ft. high, and contained 300 cubic ft. of timber; a Spanish Chestnut in the New Park measured 14 ft. 10 in. at 5 ft. above the ground, and 17 ft. 6 in. at 1 ft. above the ground; a Walnut measured 12 ft. 2 in. at 5 ft. from the ground, and about 80 ft. in height; a common Yew at the Cathedral measured 10 ft. 6 in. at 1 ft. above the ground; a variegated Plane (Sycamore) measured 9 ft. at 3 ft. from the ground, and 65 ft. in height; a beautiful specimen of *Magnolia acuminata* 3 ft. 4 in. at 4 ft. from the ground, and 40 ft. high; an Oak on the river bank, 15 ft. 2½ in. at the narrowest part, with a bole about 12 ft. in height, at the top of which are five huge branches, every one as thick as a tree of ordinary size; a Larch on the river bank measured 10 ft. 1 in. at 5 ft. from the ground, 100 ft. in height, and contained 200 cubic ft. of timber. The two parent Larches measured as follows:—14 ft. 6 in. at 5½ ft. from the ground, and 13 ft. 5½ in. at 5 ft. from the ground. Sir Robert Christison pointed out that they had grown 1½ in. since he measured them on June 29, 1878. Many other trees of equally remarkable size were noted.

On the second day the party left Dunkeld for Blair-Athole, and immediately after entering the grounds a very fine belt of native Scotch Fir was passed. Then came a line of Larches which, although not so old as those at Dunkeld, were of considerable size. One taken at random measured 10 ft. at 5 ft. from the ground, and 9 ft. at 7 ft. from the ground, and contained measurable timber to 90 ft. At this place the scenery is of the most magnificent description; the Falls of Fender, half hid by overhanging trees, descending from among the rocks and woods above in a series of cascades, boiling and eddying, falls in a shower of foam into the dark Tilt below. But we are reminded that time and railway trains wait for no man—although we have sometimes to wait upon the latter, particularly on the Highland Railway—and we have to hurry on to see more of the giants of the forest. A short détour was made in order to get a view of Glen Tilt, after which we were conducted through Blairuachder Wood, from which a most charming view was got—Blair Castle being seen in the foreground embosomed in richly-foliaged trees, and Schiehallion, Ben Lawers, and other great eminences towering in the distance all round. At Glaisceachlaidhe ("Hollow of the Sword") we saw a most thriving plantation, after a crop of Larch, said to have been the finest crop of Larch timber upon the Athole estates. The ground has been replanted with a mixed crop of Pines and hardwood—the Pines, however, having been much destroyed by ground vermin. The hardwood promises to be a really excellent crop of great value, and is making rapid progress. Upon a precipitous bank, sloping to the Banvie, a grand plantation of full-grown timber was observed, consisting of Larch, Scotch Fir, and Spruce averaging from 8 ft. to 10 ft. in circumference, and towering aloft to a height of from 100 to 120 ft. with immense, straight, clean stems; this was altogether the finest timber we saw at Blair Athole.

In the course of this journey one of the most notable objects seen, so far as forestry is concerned, was a magnificent Spruce growing by the side of the Banvie, to the enormous height of 140 ft. measured by a line from the top, and containing no less than 420 cubic ft. of saleable timber.

DRAINING PARKS AND OPEN SPACES.

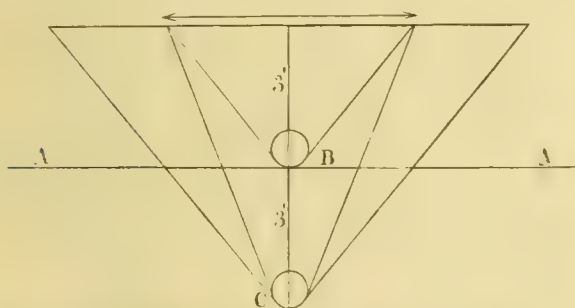
THE necessity for good drainage has seldom been more apparent than during the past four months, particularly on stiff and retentive soils, and as such work can be executed both cheaply and effectually, it ought by no means to be neglected in parks and open spaces where it is so necessary that the surface should always be in a comparatively dry state, especially those portions to which the public are allowed access. First and foremost, it should be thoroughly understood that it is not the surface water (*i. e.*, the water furnished by rainfall) with which we have specially to contend, but that which lies in the soil, rendering it water-logged, and preventing the free absorption of the rainfall. A reference to the meteorological reports will show that the annual rainfall is really necessary for the support of vegetation, and is readily absorbed or evaporated, except during the winter months, when trees, shrubs, and grass require comparatively little moisture, and evaporation is reduced to a minimum in

* Condensed from a report published in the *Perthshire Constitutional* of August 11.

consequence of the low temperature usually prevalent at that period. In considering, therefore, the best means of getting rid of the subsoil water it will be at once apparent that within certain reasonable limits the drains cannot be either too deep or too large to effectually accomplish the desired purpose. I think it is a mistake to apply to different soils various depths of drainage as is generally supposed to be necessary and often recommended; one general depth should be adopted which would answer the purpose of thoroughly draining parks and open spaces, and maintaining the vegetation therein in a healthy condition.

Having by means of surveys ascertained the position of the ground, the various levels, and fixed upon the most convenient point for the outfall (which for obvious reasons should be the lowest), the direction of the main drain or drains, as may be necessary, must be decided upon; in doing so the low-lying portions of the ground or valleys should be chosen, and, if possible, straight lines taken to the outfall. The capacity of the mains will depend upon their length, the area of the ground, and the state of the soil, whether wet or very swampy. As, however, it is always best to err on the safe side, I would recommend for large parks or open spaces and very wet soils, 9-in. mains; and for smaller and less swampy areas 6-in. mains.

With regard to the depth at which drains should be placed beneath the surface I am of opinion that from 5-ft. to 6-ft. drains are the most effective for the areas under consideration. A moment's examination of the annexed diagram will render the difference between deep and shallow drainage intelligible. If we assume a surface area 20 ft. in width, and drains placed at a depth of 3 ft. and 6 ft. respectively as shown, it will at once be evident that the angle of percolation is more acute, and therefore more rapid and effectual when the drain is placed at the greater depth, and at the same time



Deep and shallow drainage

the subsoil below the line AA is drained, which would not be the case were the drain placed at B; this alone will prove the great advantage gained by placing the drain at C. Again assuming the angle of percolation as shown to the drain at B to be applied to both cases, further evidence will be furnished in favour of the greater depth, owing to the larger amount of work done—that is the drain at C takes the water from a greater depth and drains a larger superficial area; therefore, whilst the cost would be about equal in both instances the gain in regard to effect would be greatly on the side of the deeper drain. There need be no anxiety with respect to the water finding its way to the drains, even in the stiffest and most retentive clays, as the roots of plants, worms, the stratification of the soil, and the specific gravity of the water itself, all combine to ensure success. Sometimes assistance is given by partly filling up the trench after the pipe is laid with stones, chalk, or rubble of any kind, faggot wood or Furze and similar material. This, however, is simply making the drain larger, and the same effect would be the result if we were to lay two or three rows of pipes instead of one; but there is really no special advantage to be derived from such a practice. In filling up the trench after the drains are laid, if ordinary care be taken to throw in the roughest of the soil first, it will answer all the purposes of the above-mentioned materials.

The fall necessary for drains will much depend upon the natural surface of the soil, but, if possible, it should not be less than 1 ft. in 700 ft. or 800 ft. The trenches must be filled in without ramming, leaving the soil above the surface and allowing it to settle, filling up again if necessary in the course of a month or so, and ultimately rolling the surface if of Grass. Lateral drains may consist of 2-in., 3-in., or 4 in. pipes in proportion as the subsoil is very wet or otherwise, and they should be made in exactly the same manner, both as regards depth and fall, as is recommended for the mains. These drains should be laid obliquely to the fall of the ground, never in direct lines with it. By so doing they act more perfectly as catches for

the water by intercepting its natural flow, and consequently carry it more rapidly to the mains. The distance between the lines of lateral or side drains will depend upon the nature of the soil in respect to moisture, and may vary from 20 ft. to 60 ft.

In cutting the trenches care should be taken that the bottom is no larger than is necessary to admit the drain pipes, which may be very neatly done by the aid of tools usually employed in such work. This prevents the possibility of the line of pipes becoming deranged in filling up the trench or as the soil settles down, which would otherwise obstruct the flow of water and seriously interfere with the success of the work. The junction of lateral with main drains should be at as acute an angle as possible; the object of this will be evident, as offering the least possible resistance to the flow in the mains. Pipes of short length are preferable to long ones, giving, as they do, greater facilities for the percolation of the water. It will generally be some few months before the drains are in full working order, especially in stiff soils, in consequence of the water forming its channels to the drains; once, however, they begin to "draw," the success of the work will be evident. Drainage properly carried out during the months of September and October should be in full working order by the following March.

Without giving very definite data with regard to the durability of pipes for drainage purposes, I may say it is well to choose those which are thoroughly burnt, discarding all of a soft texture as liable to rapid decay when exposed to long-continued moisture, which must necessarily be the case with drain pipes. Some time since I had an opportunity of examining some pipes which were used many years ago in draining a stiff clay, and which appeared to be none the worse for the wear. The foregoing refers only to what is termed under-draining of land and in no way applies to roads and walks, or to the more superficial drainage of cricket, croquet, and such-like grounds. It will also be found necessary on open spaces to pipe and fill up useless and unsightly ditches, which in many cases may act as main drains if placed sufficiently deep, taking particular care to protect the pipes from the roots of large trees which may be growing near their course.

—C. DENNIS.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Rosa lucida.—This is a handsome single Rose, which may be worth the attention of the few persons who take an interest in such subjects. We noticed with this at Bitton a handsome and vigorous double Rose, which Mr. Baker calls the true *Rosa sinica*, but which has probably been sent out under some florist's name, as it has good qualities, viz., hardiness, good foliage (resembling somewhat the Macartney Rose in this respect), a tea-scent, and abundance of flowers and buds in succession, at this season.—V.

The Annual Timber Sale on the Longleat Estate, Wilts, took place at Horningsham, on the 26th August. The timber was mostly second-class, and of small dimensions. The prices realised were upon the whole slightly lower than those of last year's sale. The following are the average prices:—Oak, 11 ft. average, 1s. 2½d. per ft.; Ash, 8 ft. average, 2s. per ft.; Beech, 36 ft. average, 10d. per ft.; Scotch Fir, 23 ft. average, 7d. per ft.; Larch Poles, 3½ ft. average, 11d. per ft., or 3s. 4d. per pole; Oak Saplings, 3s. 2d. each; Faggots, 21s. per hundred (6 score).—G. BERRY.

Large Spanish Chestnut.—At Underbank Hall, in Yorkshire, there is a Spanish Chestnut which measures 17 ft. 2 in. in circumference at 1 yard from the ground. It is well grown and perfectly healthy, and apparently has not yet finished growing. Surely it is unusual for this tree to attain such dimensions in so high a latitude.—Field.

Ceanothus azureus.—On a south aspect, this is at present in excellent condition, covered with beautiful azure blue flowers. Last winter's severe weather killed all the young wood, and we had to cut it in close to the old wood. But the plant appears benefited by the hard pruning to which it has been subjected, and has produced an unusual display of flower spikes.—G. L.

Colutea Pococki.—This distinct-looking Bladder Senna is a handsome shrub in flower at this season; the flowers are of a brownish-red colour, and produced very abundantly.—V.

Billiardieria longiflora.—This plant has proved very hardy at Bitton, and now bears curious blue fruit against a wall there. It seems a fragile little shrub.—R.

Calycanthus occidentalis.—This shrub is now very large and full of flower in the garden at Bitton. It is so striking and distinct that it deserves to be grown well among the choicer kinds of shrubs, and in a position where it may not be injured through overcrowding or shading.—V.

The Rosemary-leaved Willow.—*Salix rosmarinifolia* is a very graceful Willow, and quite distinct in appearance from any other. It well deserves culture as an ornamental shrub.—V.

Rubus biflorus.—This Bramble fruits freely in the garden at Bitton, and the fruits have a pleasantly acid flavour. They are not very large, and of an orange colour.

Christ's Thorn.—This shrub, seldom seen out of botanic gardens, is not without beauty at this season, when its branchlets are freely studded with small yellow blossoms. At Bitton several specimens of it in flower are very interesting just now.

THE KITCHEN GARDEN.

LIFTING POTATO CROPS.

THE prevalence of the Potato disease this year will inevitably again bring to the front the oft-repeated discussion upon the best times for planting and lifting Potatoes. The question of planting is just now a little out of date, and can hardly afford a useful topic for discussion at any time, for the simple reason that it must largely be governed by the season, soil, climate, and chiefly by the experience of the planter, so that whilst in some soils and situations one may with ease and safety plant in March, another dare not attempt to plant until perhaps the end of April. The question as to the best time for lifting is practically governed by the action of the disease. If there were none it would not matter, except for other cropping, how long the produce remained in the soil; but as the disease is so prevalent the question is, will early lifting save the crop? If we could lift our Potatoes before the disease appeared in the haulm no doubt they would be safe, but this year, as in nearly all previous years, the disease has appeared so early that even the earliest kinds, such as Early Rose, Ashleaf Kidney, Early Market, &c., have been in the full vigour of growth and the tubers immature. To lift such as these to store for a long period of consumption would be a mistake; the tubers would not keep, and would soon become totally unfit for food. We have yet no kind that will ripen as a good crop, or, indeed, any crop in three months, which is, at the most, all the possible growing season that our climate allows, as the disease is usually in full vigour early in July, and, under the most favourable conditions, April is rarely a month that will permit the Potato plant to grow in the open air without danger from its first enemy—frost. No sort, however early, that we at present have, will therefore give us by the earliest lifting when matured immunity from the disease.

Dealing, therefore, with such sorts as we have, and knowing that no more growth can take place after the haulm has become largely affected by the fungus, the point for decision is, does immediate and early lifting save the crop or any large proportion of it as compared with the produce left sound in the ground after all those affected have decayed? My own experience is a large one, and I must say that I have never yet found any gain resulting from early lifting, as the very earliest-lifted stocks, got up as soon as possible after the disease had appeared, have always when stored for a few weeks shown as many diseased tubers and in a worse form than similar stocks left in the ground. Exposure to the air seems but to facilitate the action of the disease in the tuber, and, added to the inevitable disappointment, is the labour incidental to the picking over of large stocks of perhaps half-diseased Potatoes. I believe that any tubers left untouched by the fungus when the haulm is destroyed will remain sound and good in the soil as well or even better than out of it during the early autumn months, whilst any tubers ever slightly affected will decay sooner or later, even if lifted with all possible speed.

In any case very early lifting can only be practised with moderate quantities, but where the stocks run into acres of soil and tons of produce the lifting becomes a matter of labour and time, and everything cannot be set aside even for Potato lifting. This season, amongst other difficulties, the weather has presented a formidable obstacle to the lifting of Potato stocks for long storing, as no one would attempt to lift a crop in rain and mud. Half a loaf is better than no bread; therefore I would allow the Potato crop to remain until the diseased tubers are apparent; the sound ones can then be stored. A. D.

THE POTATO CROP IN AMERICA.

EARLY Potatoes come in large quantities from the West Indies to the New York market, and when old Potatoes are very cheap large quantities are shipped there in return, the West Indian planter of course getting the advantage between high priced new ones and low priced old ones, the freight rate being very low in both cases. From May until the end of June most of our Potatoes come from Virginia; they are usually of very good quality, and are about one-third higher in price than old ones. About the beginning of July the crop begins to come in in quantity from Long Island. It has been very large and of excellent quality this year, so that prices have been low; this crop

consists nearly all of Early Rose, being a good cropper and of excellent quality. Early in August the Long Island crop is all marketed and the ground sown with Turnips. The principal supply next comes from New Jersey, but there are complaints of the crop being light, owing to the long continued dry weather. The winter supply comes chiefly from Maine and Nova Scotia, and is usually of very good quality. Large quantities are also brought by canal from the northern part of New York State; these are brought and stored before frost sets in, as it is difficult and expensive to ship Potatoes in the winter. The principal enemy to the crop is the Potato bug, but it is not looked at now as other than a necessary evil; about three dressings of Paris Green prevent any serious damage being done. I have used nearly two barrels of plaster and five pounds of Paris Green on two acres of Potatoes at a cost for material of 4 dols. 25 cents, and it costs about as much more in labour to apply the mixture. Many mix the poison in water, but, unless in special cases, the labour is thus much increased, although there is a saving of material.

JAS. TAPLIN.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Californian Curled Lettuce.—This is a useful summer variety of Lettuce, and, in addition to its being very good for salads, it is extremely pretty, the leaves, which are of a yellowish green, being beautifully fringed. Therefore, as a central kitchen garden border crop, it is both useful and ornamental.—J. GROOM.

Potato Disease under Glass.—We have hitherto comforted ourselves with the idea that Potatoes grown under glass were at least safe from disease, but during this exceptional season we have convincing proof that this is not so, as several cases have come under my own observation of unmistakable Potato disease occurring under glass, and in Mr. Coleman's "Fruit Report" (p. 179) I observe that he mentions a severe attack of Potato disease under glass so early as March, a circumstance which shows that the malady is ever present with us, and that it only needs a proper seed-bed, so to speak, in which to develop itself. Tomatoes with us have been badly diseased under glass this year, both foliage and fruit being badly attacked, exactly as in the case of the Potato disease, and several other plants appear more or less affected by a fungus similar to that which affects the Potato. The air seems laden not only with moisture but with blights, and diseases have spread with alarming rapidity. Even the foliage of Parsnips is spotted and diseased, and Celery plants have been virulently attacked by the fly, even in the seed-bed, and denuded of their earliest leaves. The red sorts with us suffered more than the white kinds.—J. GROOM, *Linton*.

Early Cabbages.—To have these for use in spring they must be planted early in well-prepared soil in the most sheltered portion of the garden, when they will continue to grow all through the winter. Close to a wall or hedge from which cold winds are shut out and every ray of sunlight is enclosed is the place to select for a few rows, and the soil can scarcely be too full of manure for them, as a Cabbage planted in poor soil is the worst of all vegetables, but give it good treatment, and cut it tender and succulent, and it will be appreciated. As regards sorts, the late trial of Cabbages at Chiswick has rectified some of the synonymous terms, but a good selection of Enfield Market or the London Market Cabbage sown in the middle of July and planted out the first week in September will give as good Cabbages as can be grown.—J. G.

The Pea Crop.—This has been about the best garden crop of the year, for although late in filling their pods they have been unusually prolific and good. All kinds grow taller than usual owing to the occurrence of so much rain, and keep on bearing longer than they otherwise would have done. We have had the following old kinds in first-rate condition: viz., Sutton's Ringleader, Dickson's First and Best, Laxton's Alpha, William the First, Marvel (a new Pea of first-rate qualities), Little Wonder, Telephone (a kind with very large pods), Veitch's Perfection, Princess Royal, and Ne Plus Ultra for the latest crops. They are still extremely clean and free from maggots, and altogether Peas form one of the most satisfactory crops of 1879.—J. GROOM, *Linton*.

Diseased Tomatoes.—Our Tomato crop on the walls is nearly destroyed again this season by disease. We lost all our Tomatoes last year by the same malady before they were ripe, but this season they seem to be going before any fruit is set. The disease attacks them in the same manner as it does the Potato, beginning first with a small spot like mildew on the back of the leaf; that soon spreads, and the part affected becomes black. As soon as the blotch reaches the midrib the leaf droops, the leaf-stalk becomes striped and spotted, and finally the stems, when all begin to decay and smell just like diseased Potato haulm. Is there any remedy, or must we endure it as we do the Potato disease, with which I believe it to be identical?—W. WATSON, *Eaglehurst, Fawley, Hants*.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

AUGUST 26.

THE exhibits at this meeting were few, and consisted chiefly of cut flowers of Roses, Gladioli, Verbenas, Picotees, Phloxes, &c.

First-class Certificates were awarded as follows:

Encephalartos Friderici-Guilielmi (Bull).—A remarkably handsome Cycad with a huge trunk about 2 ft. high, terminated by a dense crown of leaves about 3 ft. long, with the petioles covered with a fulvous brown woolly substance. The leaves are divided into comb-like sharply-pointed divisions, the whole surface of the leaf being covered with a glaucous hue.

Carludovica Drudei (Bull).—A novelty in the way of C. palmata, but dwarfer, and the leaf-segments have a gracefully arching habit. It will, no doubt, form a highly decorative plant.

Kentia Wendlandi (Bull).—An elegant Palm, with pinnate leaves from 2 ft. to 3 ft. long, but having somewhat of a rigid habit.

Agapanthus umbellatus albus (Bull).—A desirable variety of an old garden favourite, differing from the type only in having pure white blossoms, and it is as equally easy to grow.

Gladiolus Electra, T. S. Ware, Duke of Connaught, Samuel Jennings, and Duchess of Connaught (Kelway & Sons).—All fine new varieties, and well deserving the distinction accorded to them.

Picotees Lady Rosebery and Sultana (Turner).—The former is a bright orange-red with dashes of a deeper shade, and the latter a pale sulphur of large size and good form.

Picotee Princess Beatrice (Turner).—A variety with yellow ground and red edges, pretty and distinct.

In addition to those enumerated above, Mr. Bull sent plants of the new Penanga Kuhlei, Wallichia nana, Tradescantia multicolor, Agapanthus umbellatus fl.-pl., and a variety of Weigela amabilis bearing the name of Looymansia aurea. A panful of cut blooms of the gorgeous Tiger Flower (Tigridia grandiflora) was also shown by the same exhibitor, and a vote of thanks was accorded it.

Mr. J. S. Ware, Tottenham, sent cut blooms of the new beautiful Montbretia Pottsi, described in our columns last week.

A new Gladiolus named Marie Lemoine, similar to that certificated at the last meeting, was exhibited by Messrs. Veitch for M. Lemoine, Nancy. The parentage of this hybrid also is probably the same as that of the other shown previously.

The principal attraction of the meeting was centred in a magnificent collection of cut spikes of Gladiolus, all of which were, notwithstanding the unfavourable season, as near perfection as possible. The flower-spikes averaged from 1½ ft. to 2 ft. high, with flowers of large size and presenting a striking diversity of colour. The finest comprised Jessica, chiefly of a rosy hue; Samuel Jennings, bright scarlet with the under segment white; A. F. Barron, deep rich salmon tint; T. S. Ware, intense scarlet, large and dense spike; Egyptian King, a very distinct and deep rich plum colour; Electra, bright rosy-magenta, large flowers and spikes; Duke of Connaught, a splendid kind with flowers of brilliant crimson, mottled with a brighter shade. These, with several others shown, were Messrs. Kelway's seedlings this year, and were worthily awarded a gold medal.

Messrs. Perkins & Sons, Park Nurseries, Coventry, exhibited four boxes of cut Roses, consisting of a varied selection of the leading varieties in fine condition for the present time. A new seedling variety, Henry W. Eaton, was also shown by the same exhibitor. The flowers are of moderate size, good form, and brilliant crimson colour. A silver Banksian medal was voted to this collection.

From Mr. Charles Turner, Slough Nurseries, came a collection of cut blooms of Picotees, the most noteworthy of these being Picotee Sultana (self), with flowers of large size, and bright orange-red colour; Lady Rosebery (with pale sulphur flower), Lightning, Lady Biddulph, Lady Aitchison, and Sir John Lambert were also fine red-edged varieties. Mrs. Colman, Flavius, Mrs. Purvis, Princess Beatrice, and Dove, though exhibiting somewhat of a sameness in their colour, are nevertheless desirable varieties; Cyprus, Sebastian, and Edith are also pretty varieties. The whole strain received high commendation.

Mr. Cannell, Swanley, showed a superb collection of Verbenas, comprising nearly three dozen varieties. A selection of the best were—Miss Matilda with very large trusses of white and quaintly striped with violet; Kentish Beauty, a remarkably rich purple kind; Neptune, Lord Leigh, trusses; Shakespeare, splendid scarlet; Lady Langesbury, white, with a broad purple stripe down the centre

of each petal; E. Perkins, white, with carmine centre; Boule de Neige, large trusses of pure white; Marquis of Salisbury, a rich clear violet; Master R. Cannell, of a lighter hue. A very fine unnamed seedling form was also in the same collection with white pips broadly margined with purple; a collection of Phloxes, French Gold-laced Marigolds, and a dozen flowers of Hollyhocks perfect in colour and form. To these a gold medal was awarded.

A small group of Coleus was sent by Mr. Lloyd, Brookwood Asylum, Woking, and a similar contribution came from Messrs. Carter & Co., High Holborn, one of which named Canary Bird was remarkably distinct from the ordinary kinds.

From the Society's Gardens came a well grown group of Celosias and Cockscombs; also plants of the handsome Abutilon Sellowianum marmoratum, and the elegant Reidia glaucescens, a plant well deserving of more extended knowledge; also cut blooms of the pretty Papaver umbrosum, which somewhat resembles the common field Poppy (P. Rhæas), but is much superior on account of the distinct black blotches on each of the petals.

Messrs. F. & A. Smith, Dulwich, contributed a group of Balsams, of a choice Camellia-flowered strain; also a fine example of the graceful Asparagus plumosus, a greenhouse kind admirably adapted for cutting purposes.

Fruit.—On this occasion Messrs. J. Carter and Sons' prizes for single fruits of Dell's Hybrid Melon were competed for, but only five fruits were exhibited. The best came from Mr. T. Taylor, gardener to Mr. J. McIntosh, Duneevan, Oatlands Park; Mr. T. Jones, Elvetham Park, Winchfield, showed the next best; and the third prize was awarded to Mr. J. Bennett, Deepdene, Dorking. Apple Gray's Seedling, a handsome kind, was sent by the raiser, Mr. Gray, Brooke, Isle of Wight. Mr. J. Douglas sent Apple Kerry Pippin, and Strawberry Pippin, a handsome kind of moderate size.

Vegetables.—Mr. Culverwell, Thorpe Perrow, Bedale, sent Seedling Pea Autumn Marrow, a prolific bearer, with pods of unusually large size. Messrs. E. A. Webb & Sons, Stourbridge, sent samples of their new Marrow Pea. Messrs. J. Cook & Son, Weybridge, also sent a seedling Pea, Cook's Conqueror. Messrs. Hurst & Son, Leadenhall Street, contributed a dish of new Mammoth Negro Beans, with pods of large size—a prolific bearer. A first-class certificate was awarded to this variety.

CRYSTAL PALACE FRUIT SHOW.

AUGUST 28, 29, AND 30.

NOTWITHSTANDING the general lateness of the season, the date of the annual exhibition of fruit at the Crystal Palace was fixed quite a month earlier than that of the last and previous years, which necessarily resulted in a display far below the average, both in point of number and quality of the exhibits. Hardy fruits were especially poorly represented, and the long lines of Apples shown last year strikingly contrasted with the meagre display on this occasion. The classes for vegetables were withdrawn, as were also those for cut flowers. Several collections were, however, contributed, which considerably enhanced the attractiveness of the meeting. Amongst these the Roses from the Waltham Cross Nurseries and the superb group of Gladioli from Messrs. Kelway & Son, Langport, were the admiration of every one, and were worthily awarded extra prizes.

Collections of Fruit.—The competition for twelve dishes of distinct kinds, though by no means numerous, there being but three exhibitors, was closely contested. The premier collection was shown by Mr. Coleman, Eastnor Castle. It consisted of Black Hamburgh Grapes, large in bunch and berry, and highly-finished Muscat of Alexandria, also good; Pine-apples Prickly Cayenne and Charlotte Rothschild, both heavy and well-formed fruits; Melons Dr. Hogg and Golden Gem; fine examples of Royal George Peach and Pitmas-ton Nectarine; Bigarreau Napoleon Cherries, Peach Apricot, Kirke's Plum, and Brown Turkey Figs. The next best collection came from Mr. Sage, Ashridge, the most noteworthy points in which were the Royal George Peaches, a heavy bunch of Bananas, and Eastnor Castle Melon. The other fruits shown were Crown Bob Gooseberry, Hemskirk Apricot, Early Favourite Plum, Brown Turkey Figs, El-ruge Nectarine, Bigarreau Cherries, Bellamore Hybrid Melon, and Muscat of Alexandria and Black Hamburgh Grapes.

Grapes.—In the class for ten distinct kinds there were but two exhibitors. The premier prize was taken by Mr. W. Elphinstone, Shipley Hall, Derby, whose collection comprised Black Alicante, Gros Colman, Muscat Hamburgh, Foster's White, all of first-rate quality; Golden Queen, Buckland Sweetwater, Muscat of Alexandria, Lady Downes, and Black Hamburgh scarcely so good. The other competitor was Mr. Bannerman, Blithfield, Rugeley, who had fine examples of Black Prince, Trebbiano, and Gros Colman amongst his collection. For three bunches of Black Hamburghs there were a

dozen exhibitors, the majority of whom showed excellent samples. The best came from Eastnor Castle Gardens, and were simply perfect in size of bunch and berry. The second prize set were quite equal in finish, but scarcely so large. Mr. Coleman was also the most successful of the two exhibitors in the class for Muscats of Alexandria, which were very fine examples of skilful culture, though lacking the bright amber tints attainable in favourable seasons. The first prize for Gros Colman was taken by not large bunches, but as regards size of berries and exquisite finish they left nothing to be desired. Two other sets were shown, which were also good. Of Madresfield Court Grapes the best were shown by Messrs. Peed & Sons, Roupell Park, Norwood. Though they did not excel in size the other two sets shown, they were much superior in point of finish. Some fine bunches gained first honours for Black Alicante, and were exhibited by Mr. H. Folkes, Hemel Hempstead. They were not extraordinarily large, but they were unusually fine in other points. There were three other exhibitors in the class. The class for black Grapes of any kind was more numerous represented, there being eight contributors. The best were shown by Mr. W. Elphinstone, Shipley Hall, Derby, who had moderately large bunches of Black Hamburgh, but scarcely so well coloured as they might have been. The next best came from Eastnor Castle, which were well-grown examples of Venn's Black Muscat. The first prize for white Grapes of any variety was taken by Mr. Folkes, Hemel Hempstead, with excellent bunches of Buckland Sweetwater. Foster's Seedling was also shown well for the second prize. There were five other exhibitors in this class. The heaviest bunch of black Hamburgs was shown by Mr. F. Jordan. It weighed 5 lb. 4 oz. The heaviest bunch of a white variety was one of Trebbiano, weighing 3 lb. 6 oz., shown by Mr. O. Goldsmith, Polesden Lacey, Dorking.

Pines.—These were but scantily represented, especially in the class for the Queen variety, there being but one contributor, and the fruit shown was not above the average size. Smooth Cayennes were shown well, and represented some heavy and well formed fruits. The best was shown by Mr. D. Wilson, Castle Hill, South Moulton, Devon, whose fruit weighed 6 lb. 10 oz. The other fruit came from Wycombe Abbey, and was also good. In the class for Pines of any variety the finest was shown from Eastnor Castle, and the next best from Mr. D. Wilson, both of which were the Charlotte Rothschild variety.

Peaches and Nectarines.—These were but scantily represented in all the classes. The first prize was awarded to the Alexandra Noblesse variety. But two exhibitors showed in the class for three dishes of Nectarines. The best came from Mr. Bannerman, who had Violette Grosse, Violette Hâtive, and Elruge. The class for single dishes contained some very good fruits. The best were shown from Ashridge Garden by Mr. Sage, who had admirable fruits of Royal; the second prize was taken by some fine fruits of Princess of Wales. Eight other dishes were also shown, and amongst them were fine examples of Princess of Wales, Violette Hâtive, and Grosse Mignonne. Seven dishes were shown in the class for Nectarines. Some excellent fruits were shown of the Pine-apple variety for the first place, and Stanwick for the second.

Melons.—About a dozen fruits were shown in the class for green-fleshed varieties. Mr. Sage was first with a fine fruit of Eastnor Castle, and a handsome fruit of the Squire was exhibited by Mr. Bailey, Shardeioes, for the second place. The best scarlet-fleshed kind was Victory of Bristol, a beautifully netted variety, shown by Mr. Carmichael, Bury St Edmunds, and Mr. Coleman showed Dr. Hogg for the next prize. Seven other fruits were shown in this class.

Figs.—There was but one entry for three dishes of this fruit, and these were from Ashridge Gardens, consisting of Lee's Perpetual, Bourdisott Blanche, and Brown Turkey. Mr. Coleman showed the best single dish, consisting of well-grown fruits of Brown Turkey. The same variety also gained the second place. Two other dishes were shown.

Plums.—These were but poorly shown; only two exhibitors showed in the class for three dishes. The first prize was awarded to Golden Gage, Kirke's, and Emperor. The best Green Gages were shown from the Elvetham Park Gardens. Three dishes were shown.

Apples.—The poor display of these showed unmistakably the backwardness of the season, there being but a dozen dishes shown. The best three dishes came from the Convent Garden, Roehampton, and consisted of Irish Peach, Cellini Pippin, and Quarrendon.

Pears.—Only three dishes of these were shown, and these in inferior condition; the varieties were Green Chisel, Jargonelle, and Williams' Bon Chrétien.

Tomatoes.—The class for a collection containing twelve fruits of each kind was unrepresented. There were five dishes shown in the class for twelve fruits; the best consisted of excellent examples of Trophy, shown by Mr. J. Worthing, Chadwell Heath, Essex.

Cucumbers.—The best brace of the white-spined variety was exhibited by Mr. J. Davy, Streatham, for a handsome seedling kind. Six other contributions were displayed, amongst which were excellent fruits of the Olive, Duke of Connaught, and Duke of Edinburgh kinds. The finest brace of black-spined kind were Telegraph, shown by Mr. Williamson, Dulwich. There were four exhibitors in this class.

Miscellaneous Class.—An extra prize was deservedly awarded to Mr. D. Wilson, gardener to Earl Fortescue, Castle Hall, North Devon, for half-a-dozen splendid fruits of Smooth Cayenne Pine-apples, all of which were admirable examples of skilful culture. Mr. H. Smith, Leeds, Yorkshire, sent four dishes of Gooseberries of large size, and Mr. C. Osman, Sutton, a seedling scarlet-flesh Melon. Mr. T. Laxton, Bedford, exhibited samples of Peas Laxton's Marvel, Laxton's Improved Omega, and Laxton's Improved Connoisseur; also pods of an unusually large variety of Broad Beans.

Flowers, &c.—A tastefully-arranged group of plants was contributed by Messrs. J. Laing & Co., Forest Hill, consisting chiefly of Palma, Ferns, Dracænas, Caladiums and other Aroids, Crotons, Coleus, and other fine-foliaged plants, which were enlivened by flowering plants of Begonias, Phloxes, &c. Messrs. Kelway & Son, Langport, exhibited a splendid collection of Gladioli, comprising about eight dozen spikes remarkable both for the large size, perfect form, and great diversity of colour in their flowers. A dozen boxes of cut Roses were shown from the Waltham Cross Nurseries, which, considering the untoward state of the weather, were in fine condition; the Tea Roses were especially noteworthy. A group of ornamental Grasses was shown by Messrs. Hooper & Co., Covent Garden; the bright hues of the dyed flowers and Grass were very gay. A group of Succulents, &c., including a collection of small plants in miniature, were contributed by Mr. Boller, Kensal Town.

First-class Certificates were awarded to Messrs. Kelway & Son, Langport, for the following Gladioli:

Lord W. Beresford.—Large spike; flowers amaranth, shaded with purple-lake and streaked with white.

James Douglas.—A splendid variety with flowers rosy-lilac, dashed with crimson and white.

Jessica.—A fine large flower; white, tinged with lilac; crimson throat, and yellow blotch on lower petal.

Duke of Connaught.—Flowers deep cerise, mottled with a lighter shade, and veined with white.

Duchess of Connaught.—White blossoms shaded with purple, rich violet-purple throat.

A list of awards will be found in our advertising columns.

ANSWERS TO CORRESPONDENTS.

Pear Cordons.—I have some planted four years ago, which I have each year summer pinched to four and then to two leaves, but the successive year's growths have in some instances reached a length of 12 in. or 15 in., and the inner portion (nearest the stem) is becoming bare of shoots and leaves. How must I proceed? and ought I to have winter pruned them each year to keep them within bounds, and if so to what extent? **PUZZLED.** [Yes, partial winter pruning is an absolute necessity in order to prevent the accumulation of long naked spurs, for no matter how persistently the trees are summer-pinched, it is obvious that in time the spurs must get long and bare unless occasionally shortened back to within an inch or two of the main stem. We would advise you to shorten, at next winter's pruning, a fourth portion of these spurs, of course selecting those most bare of buds, and each year afterwards, selecting the next worst, till all have been removed. You need have no fear that new shoots will not be produced, for even if cut to a dormant eye or bud new growths are sure to appear, which stop or pinch as before. W. W.]

Wall Plants.—I have a wall facing the east on one side of my flower garden now covered with Pear trees. These are worn out, and I want to cover the wall with evergreen shrubs that will grow pretty close to it, and so hide the brick-work. I may state that it is partially sheltered by a wall from the north, and evergreen shrubs and trees from the east. The trees are on the other side of the lawn about 30 yards off. What had I better plant? I do not want to use Ivy if I can get anything else. Would Garrya elliptica do on such an aspect, and does it cover well?—**H. D. P.** [There is nothing better than Ivy, of which there are several kinds differing more or less in the form of their leaves and rapidity of growth. Other plants suitable for the purpose are variegated Euonymus, Evergreen Jasmines, Myrtles, Smilax mauritanicus, S. tannoides, Holboellia latifolia, &c.]

Names of Plants. *Sub.* 1, *Spiraea alba*; 2, *Dentzia scabra*, fl. pl.; 3, *Taxus adpressa*; 4, Cannot name without flowers; 5, *Spiraea callosa*; 6, *Berberis* (cannot name without flowers). *Alpha.*—*Spartanum africana*, *F. N. K.*—*Poinciana gilliesii*. *Northwolds.* The Sweet Pea bloom sent is not uncommon, and may be found in almost every good strain. *N. K.* 1, *Glottaria Plantagin.*; 2, 3, 4, varieties of *Achimenes*, which we cannot undertake to name; 5, *Lilium longiflorum*; 6, *L. chalcidonicum*. *R. T. K.* 1, *Tetratheca hirsuta*; 2, *Ruellia cilata*. *A. K.* The yellow flower is *Calceolaria chelidonioides*, the other *Mertensia paniculata*. *Notts.* 1, *Onocnemis cucullatum*; 2, *O. rubiginosa*; 3, *Odontoglossum Lindleyanum*. *Alpha.* 1, *Gadetea Whitneyi*; 2, *G. amena*; 3, *G. Lindleyana*; 4, *Eriotheca fruticosa*. *Mr. M.*—We are unable to ascertain correctly the names of the twigs of shrubs you send, but apparently they belong to the Himalayan Lilac (*Syringa Emodi*). *Dublin.* 1, *Gentiana gelida*; 2, *Monarda fistulosa*; 3, *Circea lutetiana*; 4, *Bartonia aurea*; 5, the Hop Hornbeam (*Ostrya vulgaris*). *M. E. T.*—*Hesperocordum lacteum*. *Devon.*—*Berberidopsis corallina*, a native of Chili.

"This is an art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

IN THE KENTISH FRUIT GARDENS.

As regards hardy fruits Kentish gardens have this year little to attract attention, for orchards from which in some years thousands of bushels of fruits have been sent to the London markets are this year almost fruitless, and it is only in a few gardens, such as that of Mr. Killick's, of Langley, to which our visit was specially made, that anything like even one-third of a crop can be found. The Hops, too, on which so many people in Kent depend, are this year a doubtful crop, being badly infested with mildew and "vermin," as the green and black fly are called. Mr. Killick, though owning a large extent of orchards for growing fruit for market, likewise devotes much time and space to the growth of dwarf Apple trees for the purpose of ascertaining which are the best kinds for the locality and also to provide fruit for show; and the same remarks also apply to Potatoes.

Apples.—In this locality Apples this year are a very scanty crop. I visited some of what are considered the best orchards round Maidstone and Langley, and only a few kinds of Apples were bearing anything like a crop; indeed 90 per cent. of the trees have no fruit on them at all. Mr. Killick has quite an exceptional crop, the reason being that he has but few kinds in any quantity, except those which he has proved for years to bear crops in all seasons, and with these kinds nearly all the old trees about the place are being grafted. The three sorts on which the most value is set are Warner's King, Tower of Glamis, and Stone's Apple or Lodington Seedling, the latter being without doubt the best and most profitable kind of Apple grown in Kent, for no matter how bad the season, this may always be depended upon to produce a crop. Its fruit is something like that of the well-known Keswick Codlin, but larger, and more highly coloured, and much firmer. It is fit for culinary purposes in August, and will keep good till the end of November. The tree makes but little growth each year. The original tree, comparatively a small one, is growing in a garden belonging to Mr. Skinner, where it has been planted at least thirty years, and it is stated to be only very little larger now than it was fifteen years ago. This tree is now bearing the best crop of Apples which we have anywhere seen this year—in fact such a crop as one would not expect to be surpassed in even the best of Apple seasons. Mr. Killick has hundreds of old trees cut back and grafted with this kind. Grafting is not performed here in the way in which it is generally done. In the first place the trees are not cut back into the old thick limbs, but only to supple wood the size of a broom handle. The rind only is opened to admit the graft, which soon "takes;" the old wound gets healed over, and few would detect that the tree had been grafted at all. In the second year after grafting a fairly good crop of fruit is obtained. After this, any shoots of the original kind which may spring from the old wood are kept cut off, and new life, as it were, is thus given to the tree.

Orchards.—The method of forming Apple orchards here is an excellent one. Land occupied by Hops is planted with Apple trees at suitable distances apart, and they make rapid growth. The Hops remain for three years or so; the ground is kept well cultivated for their sake, and when they are dug up the orchard is laid down in Grass, which is eaten off by sheep. By this means the ground is kept

manured, which induces the trees to grow and bear well. Orchards thus formed are considered the best and most profitable of any. The expense in forming them is trifling, whilst when once established they incur no further trouble. The trees, moreover, succeed better than those planted in land previously laid down to Grass, a fact clearly apparent here, where both plans have been tried.

Keeping Apples.—All those who have been in the habit of visiting the meetings of the Royal Horticultural Society at South Kensington, know in what excellent condition Mr. Killick has on many occasions exhibited collections of Apples even in the end of July. The method of preserving them in such a sound, fresh state is as simple as it is effective. An ordinary looking cupboard, placed in a cool room attached to one of the Hop kilns, is the place in which Apples are kept so well at Langley. Inside the cupboard are lattice-work shelves, on which the fruit is stored. The secret of success, however, lies in the following points being observed: Firstly, the fruit must be thoroughly sound and ripe when gathered from the trees; secondly, it must be laid out in an airy place to get thoroughly dry before it is stored; and thirdly, after it is placed in the cupboard—which, by the way, must be air-tight—no more light or air must at any time be admitted to it than is absolutely necessary. If required for show the Apples should be carefully taken out and packed at once in hampers or boxes, and, when returned, replaced in the cupboard without delay. By observing these rules any fairly good keeping Apple may be kept sound until the tree from which it was gathered affords a crop fit to gather the following year.

Choice dessert and new kitchen kinds are grown chiefly in the form of dwarf, pyramidal, or bush trees. They are planted some 10 ft. or 12 ft. apart each way, and the ground between them is well cultivated and cropped. Large numbers of fine Apples are obtained from them, even in such unfavourable seasons as the present. The kind bearing the best crops this year is Eclington Seedling, a new sort, which ripens its fruit in September. It is a fresh yellowish-green looking Apple, very smooth and bright, and is considered to be in every way an excellent kind, and one which will eventually, on account of its hardness and heavy cropping property, be largely grown. Emperor Napoleon is another kind of great excellence; we noticed several trees of it bearing really good crops. Its fruit is of a bright red colour, and ripens early in September; indeed, it was eatable in the middle of August. It is a good flavoured kind and well worth extensive culture. Golden Spire is another good sort, and one which seldom fails to yield a crop of good fruit.

In the grounds of Mr. W. Skinner, who is well known as a successful exhibitor of Apples, and who owns what is considered to be one of the best, if not the best, Apple orchards in Kent, we found as a rule but a very scanty crop of fruit, and that in the case of trees generally noteworthy for their productiveness. One tree, however, of an unnamed sort, probably raised in the neighbourhood, proved an exception, for on it there were supposed to be about forty-five bushels of Apples. The tree, which is very handsome in shape, covers a space of not less than 140 ft. in circumference.

Plums.—Of the commoner kinds of Plums there are in some places fairly good crops; at Mr. Killick's they are bearing almost heavy crops. Crittenden Prolific or Cluster Damson, one of the best of Damsons, is grown by Mr. Killick in large quantities. It is, indeed, planted round every field near the hedgerows to form a shelter for other crops. On this Plum there are really good crops, which, for jam making, bring this season high prices. In plentiful Plum years, however, its value is considerably lower. This

Plum, which was raised in Kent many years ago, bears freely on the previous year's growth, and, on account of its extreme hardness, rapid growth, and good cropping propensity, trees of it in Kent may be counted by the thousand. A Plum known in the market as the Violet Plum is also largely grown in this neighbourhood. It is the Violet Damask, a reddish-purple, medium sized Plum, not of the best quality. Mr. Killick is fast heading back all his trees of this and grafting them with Denyer's Victoria, or what is termed the Bush Plum, a kind somewhat like the Orleans, but rather smaller and firmer when ripe. It is an immense cropper, very hardy, and the fruit travels well; it is therefore of great value for market purposes. Trees of the Prune Damson, of which there are large quantities to be found here, are bearing this year very large crops; but although that is the case, it is a kind which Mr. Killick says he would never plant again, for notwithstanding the large crops which it produces, it seldom pays.

Cob Nuts.—Of these Mr. Killick has large crops. The trees, which are cup-shaped, are grown in the most exposed open spaces in some of the orchards. They are pruned rather hard in during winter in order to keep them in shape and within bounds; in August the young shoots are thinned out, and all the points are broken off in order to admit more light and air to the trees.

Of Pears nearly the only kind grown about here is the Hazel.
C. W. S.

THE ROOT PRUNING SEASON.

THE advantage of root-pruning upon fruit trees depends a good deal upon the season of the year in which it is performed. The work is often delayed in gardens through pressure of other duties till the winter is well advanced or nearly over, by which period root-pruning of out-door fruit trees would be better left undone. Root-pruning at midwinter, or later, will have the effect of checking over-luxuriance of course, but it also ruins the prospects of even a partial crop of fruit the season following, as the trees have not then the power of recouping themselves before growth commences. On the other hand when the pruning is done, say, in the autumn the mutilated roots have time to heal and partly re-establish themselves, thus lessening the check to the growing and bearing power of the tree while still effecting the object intended equally well. This, however, applies more particularly to trees that have been occasionally root-pruned before, and not to aged strong growing subjects that may never have been meddled with in that way. Root-prune the latter when we may, the check is likely to destroy the prospect of fruit for one season at least, but afterwards such trees make up for it. In cottage gardens and in orchards such neglected trees are most frequently seen. Planted originally in a good deep soil perhaps, they develop unusual vigour of branch and bear but indifferently. For all such, root-pruning is the cure and will speedily convert the trees to fruitfulness. Rash measures must not, however, be resorted to, nor do we wish it to be understood that mere barrenness in a tree is always a sign that root-pruning is needed; the signs of over-luxuriance either in a young or old tree cannot be mistaken. When the annual growths are long and thick, and the foliage green and broad, and neither are perfectly matured, then root-pruning is indicated. A trench should be cut round the trunk a few feet from the base and all roots projecting beyond that distance should be chopped off and the remainder laid bare for a bit towards the trunk until it is ascertained that none are left that are pushing down into the subsoil; then the roots should be covered over again, taking care to clear all mutilated points with the knife and lay the roots down regularly within 1 ft. or 2 ft. at most of the surface of the soil; much will depend upon the age of the trees and the depth of the roots. In no case should old or established trees be lifted entirely out of the ground, as the check may prove too much for them. In the case of such trees root-pruning may be performed any time between the beginning of September and the middle of November, but the earlier the better.

Turning to young or dwarf trees, whether standards or on walls, and which have been operated upon before, root-pruning should be done in September or October at the latest. Fruit trees that have been root-pruned regularly, say every three or four years, do not suffer any great check by the process if carefully managed. In the

course of time the roots get into a mop condition and become plentiful, and they can then be dealt with easier than when a tree has only a few strong roots and few fibres. Such trees should never, indeed, be allowed to become unfruitful if root-pruning is practised periodically. The check should be administered before the trees have completely got over the effects of the last pruning. Cutting a trench round the trunk, 3 ft. or 4 ft. away from it, and severing all the roots met with pushing beyond, and shoving the spade under the ball 12 in. or 18 in. all round, will be enough in nine cases out of ten, and will not check growth to the extent of causing it to drop its fruit the season following.

These remarks apply to all fruit trees more or less, but the operation of root-pruning requires to be performed with more care in some cases than others. Strong-growing Apples, Pears, Plums, or Cherries will stand pretty severe handling when in good health; but such things as Peaches and Nectarines need more gentle handling, as their roots are brittle and not so numerous. In the case of the latter the trench should be opened farther from the trunk, and each root should be carefully followed up as far as it is desired to go, and they should be laid down again in good, rich, but sharp soil, in order to induce fresh fibres along the bare roots. The Peach is a subject, however, tender as it is, that will oftener bear a crop of fruit after root-pruning or lifting than any other tree. Once, in filling a new house with trees, which was not finished till the end of March, we planted some young trees when they were coming into flower, and they each bore a few fruit the same year. Last winter, about Christmas time, we also lifted and replanted a Victoria Nectarine that was planted in 1866 and had not been disturbed since, and it bore some dozen fruit during the past summer, and none of them were small.

J. S. W.

RIPENING THE WOOD OF VINES.

FIRM, short-jointed, well-ripened wood is essential to fruitfulness, and to the production of handsome, compact bunches of Grapes. Loose, straggling bunches generally denote unripe wood. There are several causes that have an influence upon the proper maturation of the wood in fruit trees, especially Vines. A heavy, retentive, over-rich border is often a cause of immature wood, and Vine-borders, from frequent top-dressing with rich manures, have a tendency to become over-rich, especially if the drainage is not perfect. This encourages the production of gross immature wood, late growth, and, consequently, loose straggling bunches, often followed by shanking. However a Vine border may be made, and whatever may be its depth of soil, or the materials of which it may be composed—and there is room for some difference of opinion on some of these matters—there is no question about the necessity for perfect drainage. Of course some soils are naturally dry, and therefore in such cases one does not require to plant on a heap of stones. In a case of this kind a drain along the front of the border and a little below its foundation, whether it be concrete or some other substance, will, for borders not more than 10 ft. or 12 ft. wide, be sufficient. For borders beyond that width, cross drains at right angles 6 ft. or 8 ft. apart should be laid in connection with the drain in front. If Vines are making gross wood that will not ripen through some defect in the border, half measures are seldom satisfactory. It is far better to clear the border out, saving as many of the main roots as possible; pack them away carefully in straw and mats to keep them from drying so much; then have the bottom properly laid, so that all surplus water will pass rapidly away.

In making new Vine borders, they should never be made all at once, no matter how wide the border may be. A healthy Vine will generally push its leading roots through it in one season, and if the border has no retaining wall in front, the roots will be through and outside the prepared border long before it is half occupied. It is better to fill in about a third of the border the first year, building up the front with turves nearly perpendicularly. In the case of old Vines that have been lifted, if the remainder of the border space is filled with tree leaves, say about March, the roots will feel an impetus that will be productive of marvellous results even the first year; and if the same treatment is continued, adding a little to the border annually, keeping the roots well at home, there will be little fear of unripe wood from root derangement. Leaves alone should be used—Oak or Beech are the best. There should be no admixture of stable manure; the latter heats violently and then cools rapidly, but a good body of leaves gives a gentle lasting warmth. A covering of the same material should also be laid on the top of the border to the depth of 1 ft. or so. At the end of the season the decaying leaves should be removed; the Vine roots will no doubt have penetrated the heap in all directions, but these may be cut back with impunity, and the loss of one root in this case will be the gain of a dozen or more. Making the border

in this way fills the whole of it full of roots, and one knows where they are; and if at any time the Vines require a little extra food, one knows where to apply it.

Thus much about border making, because unripe wood is often caused by deficient or late root action, from the borders being in a bad state, so that when this is the case the remedy may be applied in the right place. But there are, however, other causes to which the imperfect ripening of the wood may be fairly ascribed, especially with late Vineries. People often deceive themselves with the thought that, because the house has had abundance of ventilation, the wood must as a matter of course be well ripened; but this is not always so, as everything depends upon the air's temperature. A brisk circulation of warm, dry air furnishes just the required condition for hardening and consolidating the tissues of the wood and buds, and so rendering them fertile; but the same result will not be obtained if the air be at a low temperature. It is warmth that is required; hence the importance of lighting and maintaining a brisk fire occasionally at this season, or even regularly for two or three weeks if there be reason to think the wood is not sufficiently matured. And this applies not only to late Vineries, but also to mid-season houses, or such as ripen their fruit in July and August. These latter will in most cases now be clear of fruit, and a few days' brisk firing will help to finish off the wood and prepare it for pruning. All surplus growths should be at once removed, and the fruiting rods and spurs shortened back half-way to the base. This will admit a flood of light, which, in connection with a brisk temperature, will do much to complete the ripening process, and prepare them for the final pruning; and the sooner this latter operation is performed the better, after the wood is ripe. The same remarks, so far as thinning and shortening back the wood goes, apply with equal force to Vines on walls in the open air. All superfluous shoots should be at once removed or shortened back, to let in all that can be obtained of the sun's remaining power among the branches. What heat the wall absorbs is not lost, but is given off again; and this concentration of a higher temperature round the buds will materially help next year's prospects as regards the number and size of the clusters of fruit. C.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

The Crittenden Damson.—This is a variety of the Damson Plum that is not yet largely grown or widely known, but it is one that should be found in more or less quantities in every garden. I have trees here planted only two years since, and then only two years old, that are producing a good sprinkling of fruit. This early prolificacy is the distinguishing characteristic of this Damson. The trees have a somewhat pendent habit of growth; the wood is short-jointed, and fruit-spurs are produced in great abundance. The fruit is about the size of the old Damson, and of capital quality. It is a sort to be grown in large quantity for market use, and without doubt it will soon become popular.—A. D. [This variety is largely grown in the neighbourhood of Maidstone.]

The Lawton Blackberry.—Blackberries as a rule are not included in the list of garden fruits, though some of the finest-fruited varieties are certainly worthy of attention, and of these the Lawton is not only useful for culinary purposes, but also forms a desirable adjunct to the dessert, for which its large size, handsome appearance, and rich flavour recommend it. Ripening at the time when most of the kinds of Raspberry are over is another point in its favour. We lately saw the Lawton variety in Messrs. Lee & Son's nursery, bearing an abundant crop in various stages of ripeness. The appearance of the fruit at once suggested its adaptability for general culture. It is also known as the New Rochelle kind. Other good sorts are the Kittatinny, which ripens its fruit earlier than the last; and the Dorchester, a prolific and fine sort, which is in perfection in August, and continues in use for some weeks.—W. G.

Apple Orchards.—It will gratify those who have had misgivings as to sufficient quantities of Apples being planted at the present day to take the place of the orchards that must inevitably wear out, and which, even in the best Apple-growing districts, are notorious for the very large proportion which they contain of indifferent or all but worthless varieties, to learn that of late years there has been a considerable increase in the demand for young trees. In the Cheshunt Nurseries some 3000 standards used to be the number annually prepared for sale; now 14,000 are required. And another healthy sign connected with the subject is that one-half this number are confined to seven sorts, viz., Ribston Pippin, Cox's Orange Pippin, King of the Pippins, Blenheim Orange, Cellini, Keswick Codlin, and Lord Suffield, of which latter 1500 are each season wanted.—P. G.

THE FLOWER GARDEN.

ANNUALS AND THEIR CULTURE.

THE importance of a careful preparation of the soil previous to sowing seeds of annuals in the open ground cannot be over-estimated. This fact would, however, appear to be often lost sight of, and many who would be most particular as to the quality and condition of the soil when sowing under glass do not always deem it necessary to extend this care to open-air culture, and seeds are often consigned to the earth in such a manner as to preclude the possibility of their ever making satisfactory progress. The soil of a seed bed should be made as light and friable and sweet as if it were intended to be used for potting purposes. The mechanical character of soil varies; in some localities it is so light and sandy that a few days' fine weather suffices to bring it into the desired condition. Strong adhesive and clayey loams, however, require a considerable amount of preparation to render them sweet and mellow, and this preparation should be commenced early in the season. Where it is intended to sow annuals the places should be marked out, and the soil should then be turned up roughly by the beginning of March, then to lie until a period of dry weather has blown the sourness out of it, when it may after a shower be thoroughly stirred, and the lumps broken. If the work has been well carried out, there will be at least 9 in. of finely-pulverised, free soil, which may again be turned over with a fork, mixing with it some light sandy soil, such as the knockings-out of pots, or some wood ashes or burnt earth, and a little thoroughly decomposed manure. In such a prepared body of soil annuals of all kinds will thrive amazingly. The labour may appear excessive; but the reward will be great. Annuals often fail to develop their decorative capacity for the want of some such previous preparation of the soil, which, if more generally carried out, would render them even more popular than they are now. It is surprising to witness the luxuriant manner in which such things as Mignonette, Phlox, Linums, &c., grow, and the quantity of highly developed flowers which they produce when a good free root run has been provided for them. Sweet Peas, Convolvulus, &c., if they are to give a faithful idea of their value, must be supplied with plenty of good food, and in the form best adapted to the wants; in fact, no annual can give satisfaction unless its requirements are studied and provided for from the time the seed is sown, or the young plant set in the ground. Merely digging over the beds and borders and raking all smooth does not suffice; a stunted growth is too often the result of such a practice. It must be remembered that a few patches of well-grown annuals will reflect more lustre on a garden, and will afford much more satisfaction, than a whole establishment full of imperfectly developed specimens.

I do not think that annuals are so much employed as they might be, probably on account of a certain amount of difficulty which many experience in inducing the seed to germinate freely. A little practice would soon remedy this drawback. All have not the convenience for housing, or the means of purchasing, a sufficiency of bedding plants to fill their gardens; and really annuals are so varied, both in form and colour, comprising tints of the most vivid as well as the most tender and delicate hues, that they would alone suffice to render a garden gay and interesting the whole spring, summer, and autumn through. What can be more enlivening than a bed of blue Nemophila or red Silene in early spring? and what is more gorgeous and dazzling than masses of Asters and Zinnias? or again where can we find more chaste and refined hues than the Phloxes and Stocks exhibit? I have a vivid recollection of some beds of annuals grown in pots, exhibited by Messrs. Vilmorin at the Paris Exhibition of 1867. These beds were renewed every fortnight and formed one of the most interesting and most admired features in the horticultural section. I more especially remember a bed of *Rhodanthe Manglesi*, which was so striking and novel as to excite the admiration of all who saw it, and many who passed with comparative indifference choice varieties of Geraniums, &c., eagerly desired information concerning the culture of this pretty annual. A one-light frame, in a mild hotbed, will suffice to raise Asters, Phloxes, and all kinds of half-hardy annuals in abundance, enough to effectually embellish a good sized garden. Annuals have this advantage over bedding plants, they do not all come into bloom at about the same time—there is continually something fresh in process of development—each day brings something new with it. I would advise those who have not much storage room for bedding plants to go in largely for annuals. I have seen a garden of considerable dimensions where but few of the so-called bedding plants were used, but which was as brilliant and as interesting as one could well wish it to be. Although the body of soil in which the plants are to grow cannot well be made too pliable and porous, the surface should be pressed firm when the seed is sown. Many failures occur through leaving the surface soil so loose that the seed either becomes too deeply buried or

gets parched when germinating. For sowing hardy annuals, a fine day should be chosen, when the soil works easily and has become kind and mellow. It should be raked smooth and fine, clearing away lumps and stones, and should then be pressed firmly down where the seed is to be sown. Either drills or circles may then be drawn with a blunt stick to the desired depth, which for small seeds should not exceed $\frac{1}{2}$ in. Cover in the seed with fine mould, which must be made firm, and it will lie there securely until the first period of showery, genial weather brings it up. Seed merchants are often made to suffer for the unskilfulness or want of care and patience of the grower. When flower seeds are obtained from respectable firms, there should be but few failures in germination, and there would not be many if a few simple rules were laid down and carried out.

Another reason why annuals do not so often give the satisfaction they should do is that few have the courage to thin them out properly. It requires some resolution to take away five plants out of every six, and yet, when the seed has been thickly sown, a larger proportion than this must be sacrificed if the true character of the plant is to be realised. Growers should remember that the rules which guide us in planting bedding plants apply equally to annuals. Each plant must have a certain amount of space accorded for its development, without which the usual evil effects of crowding are soon apparent, and what would otherwise have matured into a beautiful mass of flower, degenerates into a weedy tangle, in which no one plant assumes the character which Nature has endowed it with. The better the soil has been made, the fewer plants need to be left together when sown in patches. Three plants will generally be found sufficient. Each individual plant then gets room to display its beauty. When massed, as it is, in beds on the lawn, then the thinning will have to be regulated by the manner of growth and natural régime of the plant, free growing spreading kinds generally requiring more space than those which are distinguished by a more upright habit. Zinnias, Stocks, Asters, and other half-hardy annuals, need to be sown on a slight hotbed, or in gentle warmth in a greenhouse. When fairly up they should be pricked off into pans or boxes, and when well established they should be removed either to a cold frame or to some sheltered situation. They should in any case be well inured to the atmosphere and be dipped in Tobacco water or fumigated before being placed in the open ground. By choosing warm, showery weather and planting firmly, they will speedily grasp the soil, and will experience scarcely any check; that is provided the roots are preserved intact, and are not allowed to dry. They should be watched for a time, and should be supplied with water if they show signs of needing it, and they will soon become well established. Such bushy ample-growing subjects as Zinnias should be allowed a considerable amount of space. They then become highly ornamental, and are very effective when dotted amongst shrubs, the most sombre hues of which serve to display their brilliant tints. In establishments where annuals are grown largely for seed, a generous well stirred soil and ample space between the plants are relied on to ensure a hearty vigorous development. The same system must be adopted by the private grower if he wishes to derive real pleasure from this charmingly varied race of plants. They resent neglect and injudicious treatment, but lavishly repay care and generous culture.

J. CORNHILL.

AUTUMN FLOWERS IN CHURCHYARDS.

WHENEVER I visit a strange town or village I always like to look round the churchyards, and, if time and circumstances permit, the churches also. Apart from the solemn thoughts suggested by the grey, timeworn walls, dating back, in many instances, for centuries, there is often something to be learnt of a useful, practical nature by those whose minds are ever open to receive impressions. In these days there is more outward reverence paid to the last resting-places of the dead than was formerly the case. Some years ago "God's acre" in many parishes was the worst-kept place in the neighbourhood. I have in my mind's eye several churchyards where the Docks, Nettles, and other rank weeds almost enveloped the tombs. Now this is altered, and in many churchyards really creditable attempts at decoration with shrubs and flowers are met with. There is no doubt still much room for improvement both in the materials employed and also in the manner of arranging them. In many churchyards and cemeteries in small towns that I have visited the chief want seems to be some tasteful, guiding, directing mind. Every one decorates the place of his dead according to his own ideas, and too often a weedy, incongruous effect is produced. Sometimes shrubs are planted on the grave whose growth is out of all proportion to, and not in character with, the position. No doubt in large towns the public bodies under whose charge the cemeteries are placed impose some restrictions upon the size of the plants placed on the graves by the friends of the departed; but in small towns and

in rural districts a very wide latitude is permitted to individual effort. I think nothing should be allowed to be planted on graves of stronger growth than Roses; and the shrubs and trees should be grouped or planted in isolated positions by some one person who possesses knowledge of effective grouping and some acquaintance with the materials employed and their probable development. The graves should be planted mostly with dwarf-growing plants, with flowers of sober colours. There cannot be anything in worse taste than planting scarlet Pelargoniums or other glaring common plants, such as are used in bedding arrangements. White or neutral colours seem most appropriate. The irregular groups of Lavender I saw in a churchyard the other day looked cheerful and sweet; so also were a patch or two of the single annual Larkspur in two or three colours mixed. The autumn-flowering Anemones I have seen most effectively grouped in churchyards, especially the white form alba, or as it is sometimes called *Honorine Jobert*. These were growing in irregular groups out of the Grass without any bare earth to be seen. The old China Rose is an especial favourite of mine for such work, and the old white Provence is a fit companion. The newer forms of Roses somehow I do not care to meet with in churchyards, especially when reared up on the end of long bare sticks; but the grandest of all plants for forming a group is *Bocconia cordata*. Five plants arranged in a group about 2½ ft. apart would be a most attractive feature. How beautiful the plant is flowering this season! Some specimens I have lately seen have been at least 9 ft. high, each throwing up five or six—in some instances more—spikes of elegant flowers. The abundant rainfall seems to have increased the vigour of most hardy plants immensely, whilst the low temperature has dwarfed and stunted the more delicate sub-tropical and carpeting plants. I have already heard from more than one quarter notes of dissatisfaction concerning the bedded-out plants this season. Another rainy year will banish the Pelargoniums and such like plants from a good many gardens. Yuccas are excellent grouping plants for churchyards, and where several are planted, including *Y. recurva* and *Y. filamentosa*, there will seldom be an autumn without flowers. The Veronicas are another family especially suited for the work, and the taller forms of *Campanula* also, such as *C. persicifolia alba* and *C. pyramidalis*; whilst the *Tritomas* should not be omitted, as for striking effect they have no superiors, and the foliage is graceful and pleasing when the plants are not in flower. I have often asked myself and others the question when walking round churchyards and cemeteries—why the trees and shrubs should be altogether of such a sombre hue. The thought of death and decay will always be associated with feelings of sadness; but the decay of autumn and winter is followed by a rejuvenated spring, and the gloom of the churchyard might be, I think, brightened up by a moderate use of such plants as variegated Hollies and Maples. The warm glow of the former when in fruit would tend to make cheerful the home of the dead. The Yew and the Cypress may still be planted, but not as at present to exclude others of a more cheerful tone. Among *Coniferae* there is no plant so suitable as *Cupressus Lawsoniana* and its numerous varieties, all of which should be included, and the golden-tinted forms will tend to illuminate those of more sombre hues. The *Ailanthus glandulosa* (Tree of Heaven) is a low tree or shrub especially suited for a group; its large elegant foliage will produce a new element in churchyard decoration, contrasting well with the materials commonly used now, whilst some of the variegated Ivies might be used to give variety to the walls, and more use might be made of the various forms of *Clematis* wherever vacancies occur on walls or buildings. Among shrubs at this season there is scarcely anything so beautiful as the Venetian Sumach, or Burning Bush as it is sometimes called, from its large singularly elegant clusters of red flowers; a good-sized bush of it would be a most attractive object, either isolated on Grass or in front of taller plants in a group. But one might go on singling suitable subjects out in this way until it became wearisome.

E. HOBDAV.

Eucharidium Breweri.—This elegant new annual promises to turn out a valuable acquisition, being of a more robust habit and having red flowers of a deeper, richer colour than those of *E. grandiflorum*. It may be seen, from the accompanying figure of a flower-bearing branch of the natural size, that the petals are curiously three-lobed, the central lobe being longer and narrower than the others. The filaments of the stamens are likewise very singular, being thick and club-shaped similar to those of some Yuccas. Like the other species of the genus it is a native of California, where it was discovered by Mr. Brewer on the dry summit of Mount Oso, Stanislaus county. Mr. W. Thompson, of Ipswich, imported seed of it; and he has succeeded in raising some plants, from one of which our drawing was prepared; but he despairs of saving much, if any, seed this unfavourable season. It is to be hoped that he will be more fortunate than he anticipates.—W. B. HEMSLEY.

AURICULA GOSSIP.

THOSE two green edges of ancient renown and modern celebrity, Page's Champion and Booth's Freedom, are certainly less easy to succeed with than most Auriculas. However, some growers are still unwillingly relieved of all cultural anxiety about them through not being able to get the plants; and before they can be plentiful again, they will have been superseded by seedlings in their own class decidedly superior to them. As to their habits, Champion is refractory in an unfavourable locality, such as a low situation, with its damps of earth and air, or a smoky atmosphere which, in and near such towns as Manchester and Sheffield, contains more that is deadly to plant life than the visible sootiness which intercepts the view and makes one's countenance ridiculous by sly touches on telling places. Freedom, when once well away, is a fine grower, but is often very tedious in the offset state, tempting the eager grower of one lingering little bit to call the sort unmanageable. Though both varieties have rich foliage when in health and active growth, yet it is susceptible of injury, and when the plants are at rest in summer or winter it is easily damaged by wet. Herein largely lies the secret of their delicacy. Upon Champion the effect of a damp situation and confinement when wet is to rot the outer foliage while green, causing a loss of leaf power that throws the plant into a decline. With Freedom under like circumstances the grass will wither round the edges, and being in summer-time naturally flecked with a yellow-green (a peculiarity common to several other varieties), a superabundance of damp about it is liable to lay hold of the quiescent foliage and injure it when in this character. Freedom's foliage is strongly ribbed on at the stem, and the collar of the plant is dangerously reduced when leaves are lost prematurely. I do not allow these varieties to receive any wet overhead, and am careful to have all plants of them so arranged in the frames or house that they cannot reasonably escape close attention. Beyond this I am not conscious that they get different treatment from the rest. They enjoy the same periodic change of quarters, they receive the same compost, and they are re-potted at the same early time (May) as all

the others. Perhaps if I come across a particularly choice morsel in the new compost heap, I should inwardly say, "Keep that for Champion," or "Give that to Freedom." But, as a broad rule, I find that what suits one Auricula suits the rest; or rather, that if you grow the whole collection with the care required to nurture your tenderer sorts, your "level best" will be rewarded with the highest results possible to your circumstances. It is a vicious system of treatment that neglects one plant a little to

pet another rather more. Mr. Douglas is unfortunate in having such solid plants as Lancashire Hero and Lightbody in this cool season running up with bloom, but it is better they should do so in August than a month later. In August many a plant that blooms will have time to manage a good heart against the spring, but the chances lessen quickly as the autumn passes on, and Hero and Lightbody, from their solid and stiff habit, are very likely sorts to be thrown out of time and tune by autumn blooms. It is not a safe thing in this respect to have a collection of Auriculas flushed and active just as August ends. They should be encouraged to root rather to make lusty Grass and fat hearts so early. If they are securely-rooted the foliage and hearts are sure to follow in good time. Indeed hearting-up is one of the latest operations of the year, and really goes on all the winter. So far, my own plants are behaving well. Repotted early, as they always are, I have at present only less than 1 per cent. showing for bloom. These are Chas. Perry, Topsy, and True Briton, and a Colonel Taylor, all of them sorts given to this habit. I hope our friend at Brockhurst will reveal to us his observations on the late and early potted plants which he has, like Mr. Douglas, been experimenting with, and that Mr. Llewellyn will tell the interesting story of his own success with "Freedom."

Kirkby Mulcard, Ripon.

FRANCIS D. HORNER.



Eucharidium Brewerii.

Primula grandis.—Dr. Regel, who has cultivated this plant for some years in the Botanic Garden, St. Petersburg, says that it is of botanical interest on account of the anomalous form of its flowers. and the large size of its leaves, but that it possesses no floral value.—W. B. HEMSLEY.

FLOWER GARDENING IN VICTORIA PARK.

Of all the London parks this is the least favourably situated as regards purity of atmosphere, for, besides being surrounded by a densely populated neighbourhood, it is also under the baneful influence of the myriads of factories which incessantly pour forth from their chimneys volumes of poison-laden fumes. It is, therefore, a matter of surprise that vegetation under such circumstances thrives so well as it does. Some of the trees, indeed, and especially the Hollies, which abound in this park, will compare favourably, as regards size and symmetrical growth and vigour, with any to be met with elsewhere. The entire absence of Conifers, however, is a remarkable instance of a particular class of trees that cannot live in a polluted atmosphere. It is flowers, however, rather than trees to which the following remarks apply, and more particularly to the annual bedding display for which this park is justly celebrated.

Sub-tropical gardening is not practised here on such an extensive scale as it is in Battersea Park, though what has been done is very effective, and would have been much more so in a favourable season. The fine-foliaged annual plants, such as Wigandias, Solanums, Ricinuses, Grasses, Hemp, and similar plants, have not yet attained half their ordinary height; whilst in the case of the tender perennial kinds, such as Cannas, Aralias, Ficuses, Abutilons, Acacias, &c., their unthrifty appearance is even more striking. A bed, however, of the better kinds of *Perula*, such as *F. conspicua*, *communis*, *Perulago*, and others, affords a fine contrast to the ordinary state of matters, as since spring they have been highly attractive, perfectly regardless seemingly of the unpropitious weather to which they have been subjected. It is such plants as these, and there are hosts of them to be found, that should be planted more liberally in all gardens, as their bright and fresh appearance affords some compensation for the ill success which has attended the more tender plants. For example, what tender plants can surpass in beauty in the open air in this climate the noble *Gunnera scabra*, a plant which has leaf-stalks 6 ft. and 8 ft. long, supporting blades a yard across; also its congener *G. manicata*, which is of still nobler dimensions; or *Bocconia cordata*, *B. japonica*, *Polygonum sachalinense* and *cuspidatum*, the Pandanoid *Eryngiums*, *Acanthuses*, *Cow Parsnips*, *Sunflowers*, *Onopordons*, even the many kinds of *Rhubarb*, and various others, besides the many handsome varieties of hardy Grasses, Bamboos, &c., which we have at our service. By a judicious selection and arrangement of such materials as these, we might in time dispense with tender, fine-leaved plants. An incentive would thus be given to the introduction of new plants suitable for such a purpose. The plants used in sub-tropical bedding here are much the same as those employed in former years. One novel feature, however, is a bed of the single-flowered Dahlias, which excited so much admiration at various places last year; the kinds are *D. coccinea*, *Cervantesi*, and *Paragon*; when in flower these will be highly attractive. The old *Amicia Zygomis* is used here with good effect, and it succeeds tolerably well. The Coral plant (*Erythrina Crista-galli*) presents a showy appearance when planted in such masses as may be seen here. The Chilean Beet, too, a plant not used so extensively as its decorative merits entitle it to be, is employed here in combination with other plants in the form of belts, a purpose for which it is admirably adapted. Mignonette and other sweet-scented plants here and there also form commendable features, which seem to be much appreciated.

The exceptionally wet season which we have had has here, as elsewhere, greatly impaired the beauty of the bedding arrangements. Most of the plants, such as *Pelargoniums*, have outgrown their prescribed limits, but the absence of flowers is very conspicuous, though none but well-tried kinds are grown, a desirable plan where such a vast number are annually required, and where failure would produce much inconvenience. The season, too, has been a most adverse one for all kinds of succulent plants, which, in some instances, are quite rotten. They are used extensively in this park, and with remarkably fine effect when favoured with warm and dry seasons.

The carpet beds are much more successful than those in which flowering plants are used; indeed, some of the designs look better than we have hitherto seen them. Here may be seen scrolls, triangles, hearts, shields, and circles of various sizes, filled with a great variety of plants, arranged in intricate patterns. All the beds are characterised by a delicate finish, and a bright fresh appearance. The group of beds which occupy a semi-circular lawn near the centre of the park are remarkable for their dazzling brilliancy, the majority consisting of fine-leaved plants. The rich green *Mentha Pulegium gibraltaria* is found to be one of the best plants for using for the groundwork of the patterns; the pretty *Sedum glaucum* is also a capital plant for similar positions. As before remarked the tender plants such as the various kinds of *Alternanthera*, *Coleus*, &c., have not grown satisfactorily this year, though even in their present state they make an effective combination intermixed with other plants. The scroll-work near one of the eastern entrances is very

elaborate, and is much admired, as there are but few failures, and all the plants used have filled the pattern well. W. G.

ORNAMENTAL CLIMBERS.

MR. W. C. BARRY, of the Mount Hope Nurseries, has furnished the *Rochester Democrat* with a list of ornamental climbers for the embellishment of the house and its surroundings. Mr. Barry names first the Virginian Creeper, or American Ivy (*Ampelopsis*) as the most valuable climber, all things considered, being hardy, growing very rapidly, and having rich green foliage that changes to brilliant crimson-scarlet in autumn. It is especially suited to covering walls, trunks of trees, and verandahs. *Ampelopsis Veitchi* is newly introduced, comparatively speaking, from Japan. Its leaves, which are small, over-lap and form a dense sheet of pleasing green. It is slightly tender when young, but afterwards becomes quite hardy. It adheres to walls without fastening. Its fine green colour changes to crimson-scarlet in the autumn. *Aristolochia* is a fine climber, with broad, heart-shaped leaves, and is a twiner, requiring a support. Among Honeysuckles are the well-known fragrant Woodbine. Hall's Japan Honeysuckle bears white and yellow flowers from June to November, is a partial evergreen, and is regarded by Mr. Barry as the best Honeysuckle we have, and one of the most valuable in the entire collection. The Monthly Fragrant Honeysuckle has red and yellow flowers; the Scarlet Trumpet has bright scarlet, tubular flowers; and the Japan Golden-leaved has variegated or netted foliage, the last in bright summers being very showy. The *Bignonia* or Trumpet Flower is well known for its large, trumpet-shaped, crimson flowers, which are produced in August. It is invaluable for covering stumps, trees, &c. Varieties give different shades of scarlet and crimson. *Akebia quinata*, introduced some years ago, is light and graceful in growth, has sweet-scented flowers, and is hardy. *Periploca* is a hardy and vigorous twiner, with glossy leaves, and is quite hardy. Under the head of Clematis Mr. Barry remarks: "Within the last ten years hardy Clematises have been wonderfully improved, and the newer sorts now in cultivation are justly regarded as the most beautiful and striking ornaments known for garden decoration. Contrary to the general impression, the severest winters do not injure them when slightly protected with straw or leaves. In order to induce a long succession of bloom, liberal culture is absolutely necessary, and a deep, well-drained soil, consisting of loam, rotten manure, and leaf-mould, is the most suitable in which to plant them. During warm, dry weather in summer, liquid manure may be given them advantageously, and every year the surface of the ground around them should be mulched with manure to keep up their strength. Clematises are gross feeders, and must be fed well to flower freely. They may be used in many ways, either trained on verandahs, walls, or trellis work; or they make superb single specimens on the lawn, trained to some ornamental support. They may also be employed as permanent bedding plants, and pegged down like the *Verbena*; or with a wire support of neat design raised about 1 ft. from the ground to run on, very pretty beds may be formed. On trees and arbours their showy and handsome flowers are very effective. Some of the choicest varieties are as follows: Jackmanni, violet-purple; Miss Bateman, pure white, and somewhat fragrant; Lady Londesborough, of a silvery-grey colour, with a paler bar on each sepal; velutina purpurea, blackish Mulberry-purple, the deepest coloured of all the varieties of this type; Viti-cellula venosa, reddish-purple, veined with crimson; Lady Stratford de Redcliffe, a new variety of a delicate mauve colour, with the anthers chocolate-red; Otto Frœbel, one of the largest, finest varieties yet obtained—flowers greyish-white, or French white, and of a thick, fleshy texture; Marie Lefebvre, pale silvery-mauve, with a deep mauve-coloured bar. Mr. Barry regards the Chinese *Wistaria* as unquestionably the most elegant wall plant we have. In the city of New York it is employed extensively for decorating the fronts of dwellings, and has a fine appearance when climbing over evergreens. Its long, pendulous clusters of pale, blue flowers have an admirable effect. There is a white variety, and one with double blossoms.

Ellacombe's Yucca.—I do not think it quite fair that my name should be honoured with this plant. About fifty years ago, when I was hunting for Yuccas in the London nurseries, I saw this plant at Loddiges's; it was not named, but in his dry, humorous way, Mr. Loddiges said, "If you will buy it and pay for it you may call it what you like." I took it to Bitton, where it thrived luxuriantly, and afterwards I gave a plant to my friend Mr. Osborn, of the Fulham Nurseries, who attached my name to it. In a letter long after my purchase, Mr. Loddiges informed me that he raised the plant from seeds sent from Malta in 1817. It was named by Haworth tenuifolia, and is described in his "Supp. Plant. Succul."—H. T. ELLACOMBE, Rectory, Clyst St. George, Devon.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Allium pulchellum is now very pretty in Mr. Elwes's garden. It was obtained from Bitton, and is superior to most herbaceous plants that flower at this season. In colour it is a showy rose. It is a plant of great value for the mixed border.—V.

The Bog Bean (*Menyanthes trifoliata*).—This is certainly one of the prettiest of our native plants, and one which is often met with in watery, boggy places, although it is not always found to be in flower, but when it is it is well worth making an effort to obtain. It is a hardy plant, and I have met with it in abundance in wet boggy pastures. Cattle do not apparently disturb it, doubtless on account of its bitter taste, it being used in some cases as a substitute for Hops.—AN OLD GARDENER.

Streptopus amplexifolius.—This interesting and graceful plant is now laden with its crimson-red and large oval berries in Mr. Elwes's collection. It would succeed in association with peat and shade-loving plants among American shrubs. It resembles in habit a Solomon's Seal, and will find a place in collections of curious plants.—V.

The Edelweiss at Bayfordbury.—I send you a sketch of a single blossom of Edelweiss. The plant was procured at Davos-Platz in Switzerland last year, and placed by Mr. Baker on one of the lower ledges of his new rock-garden lately arranged at Bayfordbury. The sketch is exact in size. I have found many large specimens on the Alps, but I have never found or seen one to approach this.—S. M. [The sketch in question measured 4 in. one way and 3 in. the other.]

Effect of Wet on Succulents.—I notice a complaint in THE GARDEN that the wet summer has injured Succulents in the Alpine garden. My pigmy rockery or Japanese garden was never so flourishing as it has been this season. Although we are on the clay, none of the little Succulents turned out this summer (including some rare ones) have suffered; but this is not all. I last year obtained from Messrs. Backhouse a plant, 3 in. high, of *Agave utahensis*. It has stood the winter and is plump and rigid. In appearance it is similar to the great American Aloe; I am glad to say it has not increased much in size. I sprinkle gravel on the surface of the rockery, which gives it a finished appearance, and I believe is beneficial.—C. E. ISHAM, Lamport Hall, Northampton.

A Garden of Hardy Ferns.—When particular attention is directed to the cultivation of a favourite class of plants the result generally is that the collection attains a degree of perfection seldom acquired in an ordinary way. Such is the case in the garden of Mr. P. H. Rooke, Weybridge Common, which is almost entirely devoted to the culture of hardy Ferns of all kinds, and it need scarcely be mentioned that they are represented by specimens of a size rarely met with. The collection is for the most part planted on rockeries, but in studying the peculiar likings of certain kinds, every available position and mode of treatment is considered. The huge plants of the larger growing kinds have places specially prepared for them, in which they can display their beauty to the best advantage. The almost endless varieties of *Athyrium*, *Lastrea*, &c. are numerous represented, as well as the rarer of the British kinds, and the majority of the hardy exotic species; amongst which the elegant North American Maiden-hair (*Adiantum pedatum*) is noteworthy, on account of its large size and unusual vigour.—W. G.

Euonymus radicans variegatus as a Permanent Edging.—No plants can surpass and few will be found to equal this dwarf species of the Spindle tree for forming permanent edgings to flower beds. A great portion of the beds devoted to summer flowering plants in the immediate vicinity of the mansion at St. George's Hill, Byfleet, are edged with it, and the effect at the present time is of the most pleasing description. There is one detail in the arrangement to which I would wish to direct attention, and that is the beds are all raised considerably above the ground level; the *Euonymus* consequently forms miniature walls of variegation around them, and serves in no small degree to heighten the effect of the flowering plants contained in them. Mr. Rose intends to employ this plant on a still larger scale, and it must be admitted that the effect realised by its use fully justifies the favour in which he holds it. Not only does this *Euonymus* harmonise well with any kind of flowering plants with which it may be associated, but it differs from the golden variegated kinds in not being in the least susceptible to injury from severe frosts, showing up charmingly fresh and bright against the green turf during the dull, sunless winter months. The flower beds at St. George's Hill are by no means in very sheltered situations, but I am informed that the beauty of the edging was not in the least degree marred by the past exceptionally hard winter. I would strongly advise those who may wish for a neat, always fresh, cheerful, and easily-managed permanent bordering to give this plant

a trial. It succeeds in almost any kind of soil, thriving admirably even when it is of a poor sandy nature.—J. C., Byfleet.

Sedum Ewersi.—This Stonecrop, a very pretty one, is blooming profusely at this season. It is a good rock plant, and also suitable for small vases, the flowers being a rosy lilac. It is quite as good a plant as Siebold's Stonecrop, though not nearly so common.—V.

Cyananthus lobatus.—This is so often seen in a weakly condition that few know its value. A tuft of it on rockwork in Mr. Elwes's garden is now quite showy with blue-purple flowers, which are as freely produced as those of a *Campanula*. It is an excellent rock plant, and should be placed in a fully exposed position.—R.

Polygonatum cuspidatum compactum on the Grass.—As seen growing in Mr. Stevens's garden at Byfleet, this plant presents a very attractive appearance. It is there employed as a "dot" plant, for which purpose its manner of growth well qualifies it. The flowers, though neither large nor showy, are produced in great profusion, and apparently possess the ability of resisting without injury a large amount of unseasonable weather. This *Polygonatum* appears to luxuriate in a sheltered but sunny situation, and altogether should decidedly find a place in gardens where variety is desired.—J. C.

Anemone vitifolia.—This plant is now in flower in Mr. Elwes's collection at Cirencester, and is very interesting in comparison with *Anemone japonica* Honorine Jobert. The name *A. vitifolia* occurs in many catalogues and on labels, but we have not before seen any plant under the name that differs from what is known as *A. japonica* or one of its forms. Mr. Elwes's plant has the leaves simple and Vine-like, as the name implies, whereas the white *japonica* has the leaves compound with the exception of a few root leaves. *A. vitifolia* is earlier in flower, and the blossoms not quite so large, the white having a slight tinge of pale purple outside. Mr. Elwes considers the white *Anemone* really the normal form, and the reddish one the sport. Considering the character of the species that come nearest to it, and also the malformation usual in the red form, this seems the right view—nothing more natural than that from the white kind the red form should sport. *A. vitifolia* was in cultivation before Mr. Gordon raised a number of hybrids between it and *A. japonica*.—V.

Gladioli at South Kensington.—One of the finest collections of Gladioli that have yet been shown was exhibited the other day at South Kensington. It need scarcely be stated that it came from Messrs. Kelway, of Langport, the leading raisers and cultivators in this country of this the most beautiful of all autumn flowers. The examples shown were in every point superb, and exhibited remarkable diversity in colour, with large size and breadth of petals—points essential in a good Gladiolus flower. For more than a quarter of a century attention has been directed at this nursery to the improvement of this popular bulbous plant, and the collection is now very extensive, no fewer than 15 acres being devoted entirely to Gladioli alone, and over 200,000 seedlings are annually raised. During the flowering season as many as 2000 blooms may be cut weekly. This is ample proof that skilful culture, and the advantages of a Somersetshire climate, suit the requirements of the Gladiolus admirably. Mr. Kelway also informs us that he plants them in various positions, on high ground as well as in low-lying places; and states also that there is considerable diversity in the nature and quality of his soil, some of it being of an adhesive character, whilst in other parts sand and gravel predominate. A judicious application of manure is highly conducive to their successful treatment.—G.

Hardy Plants at Byfleet.—The following plants now in flower in Mr. Stevens's garden at Byfleet are well worth attention. *Campanula grandiflora* is a very meritorious kind; the flowers are large, of good substance, and the general growth of the plant is robust and fairly compact; altogether it may be considered as a very desirable variety. *Bupthalmum cordifolium* is, though rather coarse, yet a very showy and effective plant, and would be a suitable subject, as would also *Epilobium alpinum*, for dotting here and there amongst low-growing shrubs. Most plant growers are acquainted with the Cardinal Musk (*Mimulus cardinalis*); a variety of it now growing at Grasmere, named Orange Perfection, is in some respects an improvement upon the type, the flowers being larger and the habit more compact. The individual flowers of *Lychnis viscaria* fl.-pl. would also be found useful in floral arrangements, more especially in hand bouquets. They are very double, pure white, much resembling a *Gardenia* bloom, and are produced continuously for a long period. Mounted and surrounded with sprays of Maidenhair Fern, and sometimes scented *Geranium* leaves, they would produce a very good effect. *Echinops strictus* should also receive a word of commendation, the flowers exhibiting a rather peculiar shade of blue, and evidently sustaining without injury a considerable amount of tempestuous weather.—C.

NOTES OF THE WEEK.

New Anthurium (*A. scabriusculum*).—A fine new tropical Aroid bearing this name is now in flower in the Aroid House at Kew. In general appearance it somewhat resembles the better-known *A. zebrinum*, but is of larger growth. The leaves are much elongated, attaining from 1½ ft. to 2 ft., and have a heart-shaped base. The colour of the leaves is a rich bronzy-green, which has a bright polished appearance. The leaf-stalks are from 3 ft. to 4 ft. in length, but, unlike *A. zebrinum*, they are of a plain green hue, and lack the singular stripes which suggested the name of that species. The habit of the plant is bold yet elegant, and it will doubtless be a welcome acquisition. It is a native of Borneo, whence it was introduced by Messrs. Veitch & Sons, who presented the specimen under notice to the Kew collection.

Bomarea Carderi at Pendell Court.—By far the finest specimen with which we have yet met of this fine Amaryllid is growing in Sir G. Macleay's garden at Pendell Court, where it is planted out in the border of a cool and well-ventilated house devoted entirely to plants from temperate regions. Its slender twining stems are trained up a pillar to a distance of half their length and the upper parts are tied horizontally to the roof. Each stem is terminated by a huge umbel of flowers which hang vertically. From twelve to fifteen flower stalks about 1 ft. long radiate from the tip of the stem, each bearing three and often four blossoms, which in shape somewhat resemble those of *Lapageria* though not so large. The colour of the flowers is a rosy-pink with the tips of the petals copiously spotted with greenish-brown. This *Bomarea* comes to us from the cooler parts of the Colombian States in South America. In some collections it is known under its synonym *B. Jacquesiana*. It would be difficult to name a more desirable greenhouse climber than this, and its culture moreover is simple if at first it is placed under proper conditions as to growth.

A rare Aristolochia (*A. ringens*).—One of the most singular species of this interesting family is now in flower in Messrs. Veitch's nursery. As regards habit of growth it is in the way of *A. ornithocephala*, a kind often seen in stoves. The flowers, too, are somewhat of the same colour but different in shape. The inflated calyx is produced in a long tongue-like manner, and is covered on the upper surface with short dense hairs, which all point downwards, an arrangement, no doubt, to prevent the egress of insects which are attracted to the flower by the odour. The other projecting portion is so arranged as to represent the expanded jaws of an animal, which aptly suggests its specific name. To the lovers of the curious among plants this will doubtless be a source of much interest, and it may be as easily grown as its tropical congeners.

Cornus Mas elegantissima.—One of the most beautiful shrubs that have come under our notice for some time is this exquisite variety of the common Dogwood. It is of the same vigorous habit as the type, but it has a decidedly pendulous tendency. The leaves, which are as large as those of the ordinary Dogwood, have a broad margin of a golden hue encircling the bright green tint of the centre, which, during the greater part of the year, is suffused with a deep rosy colour, which renders it distinct from all other kinds, and highly attractive. For planting in mixed shrubberies, or as isolated specimens on lawns, it is admirably suited, as the surrounding green hues show off its fine variegation to advantage. We saw it a few days ago in Messrs. Lee & Sons' nursery at Isleworth, where it was raised. It is there grown in the form of low bushes, half standards, or grafted on high stems, so as to adapt it for planting in dense shrubberies.

Gunnera manicata.—The now well-known *G. scabra* is generally considered to be one of the handsomest foliaged plants that we have in cultivation that will survive our winters in the open air. It is, however, far surpassed in grandeur by its congener *G. manicata*, of which we saw some very fine examples in Sir G. Macleay's garden at Pendell Court, where it forms a highly attractive feature as isolated specimens on the lawn. It is very distinct from the commoner kind in the form of its leaves, which are more heart-shaped at the base, and also in the larger size they attain; in some seasons the leaves measure 4 ft. to 6 ft. across, with stalks of a proportionate length. It differs, moreover, in the manner in which the small, inconspicuous flowers are arranged on the stout, conical stem. In *G. manicata* the secondary spikes are short and stiff, and in the other they are slender and flexible. The same mode of culture is applicable to both kinds, as they both require to be planted in a deep, rich soil, with abundance of water during the growing season. At Pendell Court both species are growing in one mass planted near the margin of the lake, where the roots penetrate into a saturated subsoil. As isolated specimens on lawns, &c., there are certainly no grander objects attainable, and it ought to be grown more extensively, especially in our public parks and gardens.

Ardisia Oliveri.—This handsome stove shrub is now flowering in Messrs. Veitch's nursery. It is erect in habit and has rather large leaves which gracefully recurve. The flowers somewhat resemble in size and form those of an *Ixora*, but are of a pleasing rosy-pink colour. They are borne in large globular clusters terminating the branches. It is a native of Costa Rica, from whence it was introduced a few years ago by the late M. Endres.

Crassula alpestris.—This is one of the most interesting among the hardy succulent plants in flower on the rockeries at Kew. It is of a trailing habit, growing only from 1 in. to 3 in. high, and has bright red branches furnished with fleshy pointed leaves. Every branch is terminated by a cluster of white blossoms, which, being produced abundantly, give the plant a very pretty appearance, which lasts for a considerable time. It is yet rather scarce in gardens, but it makes a good rock plant.

Hypericum patulum.—This is one of the handsomest of all the St. John's Worts, as it possesses in addition to large size, rich colour, and abundance of flowers, a very elegant drooping habit which adds considerably to its beauty. It is grown extensively by Messrs. Lee & Sons, in whose nursery at Isleworth it now forms an attractive feature, both in the form of masses and as single specimens. Though a Japanese plant it is quite hardy here, and is a capital subject for mixing amongst choice border flowers. Unlike its well-known congener the Rose of Sharon (*H. calycinum*), it prefers an exposed and sunny position, and moderately stiff soil.

The Meadow Beauty (*Rhexia virginica*).—In but few places is this beautiful Melastomad to be met with in anything like a flourishing condition; but a bed of it in Messrs. Osborn & Son's nursery at Fulham is now very attractive, its rosy-pink blossoms being borne in great profusion. It is generally treated as a bog plant, but here it is growing in company with hardy Azaleas in a peaty soil. It was this bed which furnished the material for the coloured figure of it given in THE GARDEN, p. 294, vol. XI.

Montbretia Pottsi.—This is a graceful and bright-flowered (orange-scarlet) bulbous plant now in bloom in the open borders at Bitton, where it has proved to be quite hardy during the past two years. It grows and increases freely. In stature and colour it resembles at a little distance the old and well-known *Tritonia aurea*, but it is even a better plant.—V.

Yucca Ellacombei tortulosa.—We have received from Messrs. Osborn & Sons, Fulham, a splendid panicle of this fine hardy plant, which admirably exemplifies what a grand subject it is for garden decoration. This variety does not differ materially from the type, and the colour of the flowers is the same. *Y. gloriosa globosa* is another fine form, with the flowers of a more globular shape than in the ordinary kind.

Burbidgea nitida.—The height of this plant was erroneously stated in the note at p. 196 to be from 2 ft. to 10 ft. Mr. Burbidge informs us that 3 ft. is the maximum height which it attains, even in the most favourable localities in its native country, which is in the very wet, rich, and shaded forests of Borneo.

Amaryllis Acramanii.—This beautiful bulbous plant is now in fine flower in the College Botanic Garden, Dublin. It is planted deeply near the wall of one of the stoves, a position in which it has proved quite hardy, though often in winter covered with water. Its handsome, rich velvety flowers, combined with glossy brown-tinged leaves, render it highly attractive.—F. W. B.

Kniphofia triangularis.—Under this name there is a plant flowering in the Kew collection which much resembles the pretty *K. MacOwani*, now so much esteemed as a hardy border flower. Whether the plants are distinct or not we are unable at the moment to say; but if botanically distinct, the two are so much alike, that where one of them is grown the other will be unnecessary.

Goodyera pubescens.—This is very successfully grown in one of Messrs. Lee & Sons' nurseries in the open air planted in a peaty soil in a frame placed in a partially shaded position. The plants, which are numerous represented, are now in flower, and though their blossoms are by no means attractive they show that the conditions under which the plants are placed are such as they require. It is at all times of the year a source of much interest, as the beautiful silvery network of the leaves is the nearest approach amongst hardy plants to that of the *Anæctochili* of the tropical forests. As to its perfect hardiness there can be no doubt as it has for some years withstood the winter cold though quite unprotected.

Kelway's Conqueror Cucumber.—On September 1 a specimen of this variety was cut in the Kelly Gardens, Devonshire, 2 ft. 9½ in. long, 6½ lb. in weight, and 9 in. in circumference at the centre, which was not the widest part. The Cucumber was presented to the Duchess of Bedford, who pronounced it excellent. Some was eaten raw and the rest stewed.—REGINALD KELLY.

TREES, SHRUBS, AND WOODLANDS.

THE SHRUBBY SPIRÆAS WITH PINNATELY-DIVIDED LEAVES.

AMONGST hardy deciduous shrubs with ornamental flowers there are few more pleasing to the eye than the small group of Spiræas that have large pinnately-divided leaves and ample, terminal, plume-like panicles of white flowers similar to those of *Spiræa sorbifolia* represented in the accompanying engraving. This group comprises only four species, or, as some botanists regard them, varieties, all of which are natives of Asia, three of them inhabiting the north-eastern part of the Continent and some of the islands, and the fourth, *S. Lindleyana*, the Himalayan Mountains. In a recent monograph of the Spiræas and their allies M. Maximowicz has revived the generic name *Sorbaria* for this group, but for us they remain Spiræas still. The characters on which this genus, and the other genera which the author in question separates from the genus *Spiræa* (as generally understood), are based, are variations in the nature of the seed-vessels and seeds. Furthermore, the four species or varieties of this group, which we may call *Sorbaria*, are so closely allied that permanent differential characters exist only in the same organs. In aspect, however, they are very different, especially in stature. M. Maximowicz distinguishes them as follows:

1. *S. KIRILOWI*.—Style below the apex of the carpel before dehiscence.

2. *S. GRANDIFLORA*.—Style terminal; flowers small—about a fifth of an inch in diameter; leaflets very taper-pointed; flowers large, $\frac{1}{2}$ in. in diameter.

3. *S. LINDLEYANA*.—Carpel having a very prominent smooth keel down the back; hairs, when present, simple.

4. *S. SORBIFOLIA*.—Carpel with an indistinct hairy keel; hairs, when present, stellate.

The difference in the size of the flowers holds good only for the wild specimens, and probably not all of those. Thus *Lindleyana*, which is perhaps the finest of the group, has under cultivation even larger flowers than the dimensions given by Maximowicz for *S. grandiflora*. Under favourable conditions *S. Lindleyana* attains a height of 12 ft. or 15 ft., and sometimes it grows even higher. When the plant is young and vigorous the massive plumes of flowers are often 2 ft. or 3 ft. long, overhanging and intermingling with the beautiful dark green foliage, forming a magnificent sight. Like most other shrubs it can only develop its full beauty when standing free. In this way it naturally forms pyramidal or hemispherical clumps, always attractive when in leaf, and specially so at this season of the year when in full blossom. It also succeeds well treated as an herbaceous plant that is cut down every winter. The foliage and flowers are usually finer when the plant is thus treated. We have called these shrubs deciduous, although *S. Lindleyana*, for example, is almost evergreen, the old leaves in wild winters falling only a short period before fresh ones appear. *S. sorbifolia* has a wide range in Siberia and Japan, and varies very much in the degree of hairiness of its leaves from a dense tomentum to almost complete nakedness. Like *S. Lindleyana*, it is a tall-growing shrub, and it is even hardier;

but in spite of its having been introduced into British gardens as long ago as 1759, it is rarely planted. It seems to have succumbed to the prevailing system of crowding shrubs together in such a manner as to provide for the early death of the weaker kinds. Under such conditions these Spiræas cut a very poor figure, even in the early years of a shrubbery, as it is called; and if they do not actually die in the struggle for existence their miserable appearance dooms them to the rubbish heap. *S. grandiflora* syn. *S. Pallasi* and *S. sorbifolia* var. *alpina* differ very much, in the wild state at least, from the preceding, growing only about 1 ft. high, and having quite small, obtuse leaflets. The inflorescence, moreover, is short and few-flowered, and according to M. Maximowicz, the flowers expand in centrifugal order, from the top downwards, or in the reverse order to

those of *S. sorbifolia*. Nevertheless, it would seem that it is really nothing more than a northern race of the same species, the difference in stature being due to climate. Indeed M. Maximowicz states that a plant raised from seed, in the botanic garden of St. Petersburg, at first resembled the typical wild plant, but year by year it became more like *S. sorbifolia*, and it is now a branching shrub 4 ft. high, with large leaves and numerous flowers, the leaflets acute and in shape near those of *S. sorbifolia*. But, he adds, the size of the flowers and their centrifugal order of expanding remains the same, hence he hesitates to unite them. The only other species at present known is *S. Kirilowi*, of which we have seen dried specimens only. It was described from specimens cultivated in gardens at Pekin and other places, and, although closely resembling *S. sorbifolia* and *S. Lindleyana*, it is readily distinguished by the characters given in the above key to the species. The leaves are quite hairless, and the plant forms a shrub 7 ft. to 12 ft. high. W. B. HEMSLEY.

[The specimen from which the annexed engraving was prepared came from Mr. Stevens's garden at Byfleet, which contains a fine collection of such plants.]



Spiræa sorbifolia.

The Athole Woods.—

The report of the recent excursion of the Scottish Arboricultural Society to these woods brings before the public many facts interesting to students of forestry. 1. At Little Dunkeld the Corsican Pine has far outstripped in growth the native Scotch Pine. 2. In the Ladywell nursery experiments are being made in rearing to a considerable size the *Picea Nordmannia* under the shelter of other trees. Hitherto considerable difficulty has been found in raising this tree in open situations, as when put out young it is liable to be killed down by frosts, and attacked by vermin. 3. Crops of Larch are not found to succeed well after previous crops of coniferous trees of any kind. 4. The bark of the Hemlock Spruce (*Abies canadensis*), a fine specimen of which was pointed out near the Hermitage Bridge, girthing 10 ft., with a height of 80 ft., is in America extensively used for tanning purposes. Its market price is about 15s. per ton, as against from £5 to £6 for Oak bark. The area of country producing this bark in America was stated to be over 10,000,000 acres. With an abundance of raw hides always available, this industry must very seriously affect the leather trade in our own country. 5. Some of the finest Scotch Pines were found growing upon a gravelly soil, which afforded them thorough drainage, and at

the age of 150 years they were seen to be still in good health, with clean bark, and covered with the lizard-like scales belonging to the indigenous Scotch Fir. 6. On the banks of the Tay, in an open glade, a fine specimen of the Silver Fir (*Picea pectinata*) was seen, which had attained a height of 112 ft., and measured 14 ft. 6 in. in circumference at 5 ft. from the ground, and at New House Bank a Larch was pointed out measuring 13 ft. 10 in. in circumference near the ground, and rising with a straight, clean, tapering stem to the height of 120 ft. This is supposed to be the finest specimen of *Larix europæa* in the country.—A. J. B.

WOODLAND LAWNS AND WOOD RIDES.

THE best time in the whole year for sowing Grass seeds, whether for the formation of lawns and meadows, for wood rides, or for recently-cleared and open spaces in woodlands, which are either to be mown or to furnish cover for game, is from about the last week in August to the middle of September. Later autumn sowings are, during mild winters, frequently attacked by slugs, so that spring patching becomes necessary; and during very wet or unusually severe winters some of the more tender Grasses perish before they get well established. The proper preparation of land for laying down is good and clean cultivation, a thorough pulverisation, a firm bottom, and a fine surface. A soil tolerably light and loamy, and also rich in vegetable matters, may be laid down to pasture without much trouble; but some of the clay soils, in consequence of the small quantities of vegetable matter contained in them, are with difficulty turned into pastures, though when once fairly established they exceed in value those upon lighter lands.

In selecting land for laying down, one of the first considerations should be thorough drainage, as without this the best kinds of Grasses will not establish themselves upon retentive soils. Wherever the Marsh Bent Grass (*Agrostis alba*), the Floating Meadow Grass (*Poa fluitans*), and the Reed Meadow Grass (*Poa aquatica*) flourish, there we may conclude that the soil contains too much moisture.

Before selecting seeds for any land the nature of the soil should be ascertained by careful observation, or if necessary by analysis. The three classes of light, medium, and heavy are those commonly accepted by seedsmen as the bases of their calculations in selecting suitable seeds, and by allowing a proper quantity for a medium soil, and adding about 15 per cent. for heavy, or subtracting nearly the same quantity for light lands, a fair estimation of the quantity of seed required per acre for any kind of soil may be arrived at. For permanent pastures about 2 bushels of the Grass seed and from 10 lb. to 12 lb. of mixed Clovers per acre are commonly recommended. But the quantity of seeds should in all cases be estimated by weight and not by measure; for the heavier the seed the better its quality and the less per acre will be required. Seeds relatively light are comparatively worthless, as they contain a large percentage of an unproductive kind. Grass seeds vary greatly in weight from about 8 lb. to upwards of 40 lb. per bushel.

The advantages of having land well prepared are numerous. Grass seeds require to be covered very lightly, and if just placed under the soil the less the depth the better. A far greater number of them will germinate at a depth of $\frac{1}{2}$ in. than at any greater depth, it being generally found that the number decreases with the depth of sowing, and living plants disappear altogether after about 2 in.

Where land is to be laid down with a mixture of Grasses and Clover seeds, these are better sown separately, or well mixed and run upon the land with the seed-barrow. Choose a dry and calm day, and finish up the operation with one turn of the harrows or the roller, as the texture of the land happens to be close and heavy or loose and light. Where the seeds are sown without a corn crop of any kind, the heavy roller may be advantageously used when they are about 3 in. high. New-formed pastures are better mown the first year, and for this purpose sharp scythes should be placed in the hands of expert workmen, otherwise some of the finer Grasses will be torn up by the roots. When grazed, turn on cattle and not sheep, and avoid treading during very wet or frosty weather. Whenever it becomes necessary to patch the pasture or to apply renovating seeds, apply a little compost at the same time, and well brush or drag and roll the land.

In selecting seeds for permanent pastures, either as meadows, lawns, wood-rides, &c., those should be chosen which have been found by experience to be best suited to the particular purpose in view. Thus, upon meadow land, an early and continuous supply of herbage of good quality throughout the summer is the main consideration; upon lawns, fineness of herbage and compactness of surface; and upon wood-rides, firmness. For medium soils of good quality I have found the following the most useful mixture: Meadow Fescue, Red Fescue, Darnel-leaved Fescue, Timothy, Perennial Red, and Smooth-stalked Meadow—1 lb. of each; Meadow Foxtail, Sweet-scented Vernal, Crested Dog's-tail, Sheep's Fescue,

Rough-stalked Meadow, and Alsike—2 lb. of each; Round Cocksfoot, Hard Fescue, Perennial Ray, and Yellow Trefoil—3 lb. of each; Evergreen Rye, Pacey's Rye, and Wild White Clover—4 lb. of each, or 42 lb. in all. By adding to or taking from the quantities in the foregoing list according to the character of the soil, a good thick sward may be obtained.

For plantation roads, where a firm unyielding sward is required, take the following mixture:—Timothy, tall Fescue, meadow Foxtail, and hard Fescue, 2 lb. of each; rough Cocksfoot and smooth-stalked Meadow, 3 lb. of each; sweet-scented Vernal and rough-stalked Meadow, 4 lb. of each; and of wood Meadow, 7 lb., or 29 lb. altogether.

Sometimes it is found expedient to lay down for a time portions of land which have been cleared out in the midst of the woodlands, and during a ride or ramble nothing is more enjoyable than a sight of the fresh turf of such a woodland lawn completely shut in on all sides by tall trees. Here the seeds must be suited to the nature of the cover. Where this is light the following proportions may be used: Sweet-scented Vernal, Meadow Fescue, Timothy, and Wood Millet, 1 lb. of each; Hard Fescue, Wood Meadow, Rough-stalked Meadow, Giant Birdsfoot Trefoil, 2 lb. of each; Perennial Red and Wild White, 3 lb. of each; White Dutch, 4 lb.; Cocksfoot and Evergreen Rye, 6 lb. of each; and Perennial Ray, 8 lb., or in all 42 lb. Where the cover is denser select of Creeping, Bent, Timothy, and Soft Meadow Grass, 1 lb. each; Tufted Hair, Rough-stalked Meadow, Wood Meadow, Evergreen or Hudson's Bay, Wood Millet, Giant Birdsfoot Trefoil, and Tall Meadow Fescue, 2 lb. each; Giant Brome and Wood Fescue, 3 lb. each; Fibrous Oat, 4 lb.; and Cocksfoot, 6 lb., or in all 33 lb. The foregoing mixtures will also form good cover for game.

A. J. BURROWS.

Pluckley, Kent.

SOIL EXHAUSTION BY TREE ROOTS.

WITH plants of any description that in a comparatively short space of time arrive at maturity, as, for instance, the various crops which attain their full growth in a single season, any deficiency of the nutriment requisite to their sustenance becomes soon apparent; whether it results from an absence in sufficient quantity of the elements essential to assist in building up their structure, or through an excess in the numbers which occupy the ground, the effects alike generally are seen at once, or rather I might say, the skilful cultivator has a knowledge of their needs, and is mindful beforehand to provide the necessary food and to see that the ground is not occupied by a greater amount of plants than it can fairly support. The soundness of this practice is so fully understood and acted upon that unless in the case of the most negligent cultivators it is now unusual to see a contrary course pursued, even with the commonest culinary vegetable. The same holds good in the case of the majority of cultivated plants that are longer in attaining maturity, or that keep on for a number of years yielding an annual produce, but to this there is one notable exception, and that is hardy trees, both those that are evergreen and those that are deciduous. I am not alluding to the management of trees grown for the production of timber, though with them the struggle for existence, consequent upon thinning being too long deferred, often inflicts permanent and irreparable injury; but I speak of those that are allowed to exist in pleasure grounds and other positions about dwellings and gardens mostly middle size in extent, whether intended as shelter belts, screens, or standing in the grounds for the effect which they produce. I feel no hesitation in saying that in the greater portion of places of the description referred to the trees are allowed to remain in a state, the result of which is to completely defeat the object in view. One would suppose it was unnecessary to point to the fact that for the purpose of a screen at a comparatively short distance in grounds of the character I am referring to, it is essential to have the trees thus employed well furnished with their full complement of branches down to the ground; instead of this, however, they are too often allowed to remain with their roots engaged in a life and death effort to extract the requisite food and water from the soil, which, through having had to feed three times the number it was capable of sustaining, in the end becomes so exhausted that the whole of the lower branches perish and become not alone unsightly but absolutely useless for the purpose intended. And if we come to the internal part of the grounds, where this very common course is followed, the condition of the trees is usually much the same as that of those on the outer portion, often not showing a single fairly-grown example that gives promise of continuing in a healthy state to anything approaching its allotted time; such trees, owing to their position, are often held in high estimation by their owners, who, by their unwillingness to part with any, allow them to remain in a state that will inevitably cause the destruction of the whole. They seem unable to see that the earth can no more sustain two plants where

one requires all the nutriment present than it can feed two animals confined on a space only large enough for one. The two cases are analogous; but trees do not show the positive effects of starvation so soon as animals do. There can be no question that half of any given number of trees, especially when occupying positions from which they can ill be spared, are greatly to be preferred to double the quantity existing under conditions wherein their food requirements are so far insufficient as to lead to their gradual but certain destruction.

Nothing less than sufficient room for the branches of a tree from infancy, and a corresponding space of ground unoccupied by the roots of other trees, can secure a healthy condition for the full period of its existence, yet it is surprising the efforts which trees are capable of making in order to repair the injuries which they have suffered when the causes by which they have been affected are removed, and in most cases, even where they give unmistakable signs of suffering from insufficient food through over-crowding. If the number be reduced so as to afford those remaining a chance of succeeding, they very soon show the benefit done them; and by this means, which rarely fails, unless in cases in which decay has gone too far, large numbers of trees that have got past their best would be so far invigorated as to attain and keep in fair condition for many years. It should not be forgotten that of trees in pleasure grounds, such as those under consideration, a great portion have their roots wholly in earth the surface of which is kept continuously mown without anything to counterbalance the impoverishing effects until the whole is as poor as it is possible for it to become, and with no opportunity of much being done that would strengthen their roots; if they, in addition occupy the ground in too close proximity to each other, the evil is very much intensified.

Where shrubs are grown over the roots of the trees new soil and manure in quantities sufficient to afford a good deal of assistance can be and frequently are applied with considerable effect, but the shrubs with their roots near the top are the first to take advantage of the manure and derive the greater benefit, especially in the case of many species of deciduous trees. It is to enough yet judicious thinning that I would point as the most effectual means for the preservation of trees in the places I have alluded to. The subject is worth consideration. By a sufficient expenditure, well laid out, a garden can be made satisfactory, so far as the ground and the shrubs go, but as for trees large and old enough to give character to a place, no possible outlay can do more than produce comparatively feeble results.

T. BAINES.

THE COTONEASTERS.

THESE consist of a goodly number of hardy evergreen, sub-evergreen, and deciduous low-growing trees and shrubs very diverse in general appearance. They are found distributed over Europe, Asia, and America; and several of the species have been long cultivated in this country, and are still extensively used in the adornment of our gardens and pleasure-grounds. Few shrubs or trees adapt themselves with greater facility to almost every variety of soil, if dry; and they are found to thrive in poor, gravelly, or sandy ground where it would be difficult to induce other plants of their character to grow. Though most of the sorts are perfectly hardy, they should always be planted in situations sheltered from the full force of violent winds.

Frigid Cotoneaster (*C. frigida*).—This is a sub-evergreen, or in mild winters and sheltered localities an evergreen tree, of about 20 ft. in height, indigenous to high mountains in Northern Nepal, from whence it was first introduced into this country in 1824. The leaves are of an elliptic form, tipped with a small spine, crenulated, of a dark shining green on the upper surface, and lighter below. The branchlets and under sides of the leaves are covered with a minute wool when young. The flowers are pure white, and small individually, but being produced very abundantly in terminal panicles, they produce a fine effect when in perfection, which is usually early in May. The small bright-crimson berries which succeed the blossoms are ripe in September, and hang on the tree till winter and sometimes till spring. It is a vigorous-growing, very hardy tree, and from its fine foliage and showy flowers and fruit, very desirable for planting either in groups, or singly in parks, shrubberies, or the margins of woods.

Allied Cotoneaster (*C. affinis*).—So named from its close affinity to *C. frigida*, of which some regard it as merely a variety. It is a sub-evergreen or evergreen tree of from 15 ft. to 20 ft. in height, introduced from Chittagong, Nepal, in 1828. The leaves are ovate, tipped with a small spine, bright green above, and woolly beneath. The flowers and fruit are almost identical with the preceding species, appearing about the same time, the berries hanging on the tree, and being very ornamental many months after ripening. It is an exceedingly interesting tree, well worthy of attention on the

part of those engaged in decorative planting, its distinct appearance giving quite a character to groups of low-growing trees or tall shrubs.

Simon's Cotoneaster (*C. Simonsi*).—This is a sub-evergreen shrub of from 5 ft. to 8 ft. in height, introduced from Khasya, in Nepal, in 1850. The leaves are oblong acute, dark green above, lighter beneath. The flowers are white, appearing in May. They are followed by a plentiful crop of bright scarlet berries, which ripen in September, and remain on the branches during the greater part of the winter. It is a remarkably hardy ornamental shrub, certainly one of the most attractive of the genus, in most seasons truly evergreen; and not only effective in the open shrubbery, but very suitable for covering walls or house fronts—its beautiful scarlet berries rivalling in beauty those of the well-known *Pyracantha*. It is also found to make a neat, close garden-hedge, standing the knife well—a purpose for which it might be, with advantage, more extensively used.

Small-leaved Cotoneaster (*C. microphylla*).—This is a prostrate evergreen shrub, with long wiry stems, spreading over many feet when allowed full scope, but seldom rising above 2 ft. or 3 ft. It is a native of Nepal, where it is found on the rocky slopes of mountains. It was introduced in 1824. The leaves are small, oblong, of a thick leathery texture, dark green above, and slightly pubescent beneath. The flowers are white, similar in appearance to those of the Hawthorn; they appear in May or June, and are succeeded by scarlet berries, which ripen in August, and remain on all the winter. Apart from its value for planting as a single specimen on a lawn, where it soon forms a compact, cushion-like specimen, it is one of the most useful of plants for a low wall, the dense full foliage, twiggy branches, and bright berries in winter rendering it a very pleasing object. It is, moreover, a valuable rockery plant, and may be introduced with the best effect into any situation where a trailing evergreen shrub is desirable.

Thyme-leaved Cotoneaster (*C. thymifolia*).—Another prostrate evergreen species from Nepal, from whence it was first sent home by Dr. Royle in 1850. The leaves are much smaller than those of *microphylla*, about $\frac{1}{4}$ in. long, obovate-oblong in form, shining dark green above, and silvery white beneath. The flowers are small, pinkish, appearing in May, and followed by bright crimson berries, ripe in August. This is a very beautiful little shrub, perfectly hardy, and admirably suited for planting on rockeries. It might be utilised as an edging in the flower garden, as it has all the closeness of habit which renders the dwarf box so useful, with an appearance quite distinct from, and equally handsome with, that well-known plant.—“The Gardener.”

Protection of Wood from Rot.—In *Landwirthschaft und Industrie*, Herr K. Fleischer, of Gonobitz, thus describes his accidental discovery of a means of preserving wood from rotting. Four years ago he set about making a preparation of coal-tar and ashes for the purpose of driving away ground fleas and beetles from his garden. Just as he had mixed the materials together he was called away from his work, and, on returning, found to his surprise that, instead of tar in the ashes, there was a kind of woody texture in its place. Astonished at the transformation, he tried the experiment over and over again, and invariably with the same result. Just about this time he had occasion to refloor an outdoor room, where the boards came into almost immediate contact with the ground, and took the opportunity of testing the preservative effects of this mixture by smearing the under side of the planks with coal-tar, and sprinkling them liberally with ashes, a thin layer of which latter was also sifted over the ground. The procedure proved eminently successful, for the floor is still in perfectly good condition, and not in the least attacked by fungus growth, while on all previous occasions, though laid down in equally good material, it had always required constant repair in a very few months' time, and was generally thoroughly rotten in less than two years. Herr Fleischer has since tried the same application on the woodwork of hotbeds and forcing-houses with equally satisfactory results.

Elastic Waterproof Cement for Protecting Wounds on Trees.—Take one quart of fine North Carolina tar and boil it slowly three or four hours. Add to the boiling tar 4 oz. of tallow and 1 lb. of beeswax, and stir till well mixed, then remove the vessel from the fire and stir till the contents begin to thicken. Have ready 1 lb. of dry and sifted clay, and stir it thoroughly until you can stir no longer. In warm weather this cement is soft enough to be easily spread with the point of a knife. When applied to wounds on trees it completely excludes moisture, does not harden or crack or scale off, yields to the new growth, and can at any time in moderately warm weather be pressed by the finger into the corners and crevices of the wound which may be uncovered.—*Rural New Yorker*.

PLATE CXCVI.

ROSE JEAN DUCHER.

Drawn by the late Mr. NOEL HUMPHREYS.

JEAN DUCHER, the subject of the accompanying plate, may be said to be a representative Tea-scented Rose, both in form and colour. The fortunate raiser of this variety was Madame Ducher, of Lyons, and it was first introduced into England in the autumn of 1874. It is described in "The Rose Garden" as follows: "Growth very vigorous, flowers large, full, and globular; colour salmon-yellow, shaded with peach; a very hardy variety, succeeding well out-of-doors, and producing magnificent blooms under glass." As regards colour, the flowers vary considerably, and are often of a fine rich apricot with creamy edges, and this phase of the flower is by no means the least beautiful. No garden now-a-days could be considered well or judiciously planted unless it contained at least a small selection of Tea-scented Roses. Although the finer sorts may not grow and flower in perfection in cold, wet districts, Gloire de Dijon, Safrano, Sombreuil, Madame Berard, and perhaps half-a-dozen others as hardy but less beautiful, may be planted in company with and treated similarly to the Hybrid Perpetuals and other hardy Roses. The majority of Tea Roses should, however, have the protection of a wall with a south, east, or west aspect, and we fancy they not only look better but thrive better planted 1 ft. from the wall and trained into the form of dwarf bushes than when nailed to the wall. Tea-scented Roses revel in warmth and moisture when properly applied, and their beauty and fragrance are so bewitching that they are quite worth planting out under glass. If, too, they can have a house to themselves so much the better, as then the kind of treatment necessary to their highest development can be followed out without fear of injury to other plants. This, however, is not always convenient and there are many kinds which do not absolutely require it. Generally speaking, the free-growing varieties may be introduced into the stove, greenhouse, or conservatory, where they grow and flower well whether planted out or kept in pots.

A. W. PAUL.

Waltham Cross.

TEA ROSES IN POTS.

THE Tea varieties of Roses that have been out-of-doors since spring, and which are intended to open their buds under glass, when taken indoors must not have any allowed to remain on them that are likely to open sooner than they are wanted. The flowers of the Tea sorts come on very quickly after they are once formed, but the pinching off must be done with discretion; it must not be continued too long, or the flowers will be necessarily late. The kind of weather which we get through the autumn will to a considerable extent determine the treatment which the plants need in the above matter, the object with them being to furnish flowers so as to fill up the gap that occurs between the latest blooms produced by the Tea varieties on open walls and the first that come in from forced plants. They should not be housed sooner than the weather renders protection necessary, but they ought not to have the soil too much saturated by rain; if they could have a few loose lights placed temporarily over them they would keep them right and render it unnecessary to take them indoors, unless there was danger of their suffering from frost. On the appearance of mildew or aphides, means should at once be taken to destroy them, as whatever injures the foliage reduces the blooming capabilities of the plants accordingly. Roses in pots intended for forcing should also be kept quite clear from the pests just named, and they should not be allowed to have the soil soured by too much water. Hardy plants when in pots will not bear without injury the soaking from rain that they can withstand when their roots have free scope in the open ground. Where Roses are looked for regularly—and there is no time of the year at which they are more acceptable than late in the autumn, when flowers are scarce—there should always be a good piece of wall planted with the stronger-growing Teas. I prefer a south-west or west aspect for the purpose; under such conditions, where the plants are attended to with water in summer and kept free from insects and mildew, with the protection of a few mats or canvas on frosty nights, a supply of flowers can often be kept up in moderately favourable localities until near the close of the year, and the trouble is far less than that which is frequently taken with plants that give a much less return. In houses in which more or less of the Roses are planted out, they are often, after their blooming season is over, left for a time to almost take their chance; but when the foliage is allowed to become a prey to mildew and insects it is so much the sooner rendered useless to the plants, through which they are correspondingly weakened, whereas if a little labour is bestowed upon them they will amply repay it.

T. BAINES.

GARDEN ROSES AT CHESHUNT.

"WELL, what are they? May not all good Roses be called garden Roses?" By no means, if we take them with regard to their capability to fulfil the object for which ninety-nine people out of a hundred who grow Roses want them, and who, although fully capable of appreciating the beauty of the splendid flowers of which exhibition stands are made up, yet cannot afford to cultivate varieties that are indifferent growers, or so shy in flowering, that each individual tree or bush will not in many cases produce half-a-dozen presentable flowers for even ordinary cut purposes in a season. It is for want of understanding, or in forgetfulness of this, despite all that has been said on the subject, that so much disappointment is experienced by the many who, pencil and note-book in hand, are ever to be met with at an exhibition of Roses, taking down the names of the most perfect flowers there to be seen, generally without the slightest thought as to the vigorous constitution or otherwise of the plants that have produced them. There is, too, another matter of equal importance to those who cultivate Roses as they do other garden flowers, and that is, their continuity of blooming for as great a length of time as the season will permit; for the handful of half-open buds that may be daily gathered in the later part of the summer, although in many cases inferior to those that have preceded them in the height of the Rose season, are nevertheless often more prized. With a view to seeing the kinds that maintain this late-flowering habit during the present exceptional season, I went in the last week of August to look at the Cheshunt collection, and the following few notes are the result of my visit:

Amongst hybrid Perpetuals, Sultan of Zanzibar, dark maroon, flushed with scarlet, still retains its character as one of the freest of the free autumn bloomers, full of flowers and buds in all stages. Prince Arthur, deep crimson, was full of flowers and buds. J. Stuart Mill, bright red, one of the best. Duke of Connaught, fiery crimson, one of the best for all seasons early and late; a great favourite with the growers for market. Mrs. Laxton, rosy-crimson, very bright; extremely free flowerer; late. Schwartz's new Rose—A. K. Williams—let out last year, reddish-crimson (a Horace Vernet formed flower when that fine Rose is at its best), another of the most persistent late-bloomers. John Bright keeps well up to its character, and even at this advanced season the quantities of glowing crimson flowers which it carries make it conspicuous amongst its neighbours for some distance. Jean Liabaud, another bright crimson shaded with violet, is better now than in the earlier part of the summer; it is in the way of Abel Carrière, but not quite so strong a grower; the latter is also one that may be included in a select list of late bloomers. Beauty of Waltham, rosy-crimson, another of the best, is full of flowers and buds. Madame Lacharme, is one of the few whiter Roses that keep on flowering late. Camille Bernardin, light reddish-crimson, equally as good as an autumn bloomer as it is in summer. Boule de Neige, a grand old pure white Rose, which in form and habit of flowering may be set down as an exaggerated Aimée Vibert, and forms a splendid bush covered late with flowers. Dr. Andry, bright red. La France, full of flowers and advancing buds, with its foliage still fresh and green when grown on the Dog Rose, but completely over-worked on the Manetti, which to a considerable extent holds good in its similarly affecting other sorts. John Hopper, another old favourite and one of the best of late flowerers. Glory of Cheshunt, dark velvety-crimson, a new Rose not yet sent out; evidently one of the most continuous and late bloomers; it is all but evergreen, an immensely strong grower, forming a stout dense bush as strong as the free-growing Rêve d'Or, as shown by the parent plant raised from seed four years ago, and which is growing beside a very vigorous bush of Rêve d'Or. Duke of Teck, also a new variety not yet sent out, a fine constitutioned Rose, almost as strong a grower as the preceding; in colour it is the nearest approach to scarlet, and has all the appearance of keeping on blooming to the end of the season. Independent of what these two Roses may prove to be as exhibition kinds, it is evident they are acquisitions as garden Roses. The above, although not by any means exhausting the list of late flowerers, stand out conspicuously in the immense collection at Cheshunt as the best. Their foliage is ample and strong, resisting the attacks of mildew very much better than the weak-growing kinds. Respecting mildew I may here observe that the present season is quite an exception as to the absence of that parasite, giving undoubted evidence that when it spreads to a great extent, as usual in dry summers, it is in a great measure attributable to the insufficiency of moisture at the roots.

In the Tea varieties, which are the best of autumn bloomers, the following are amongst the strongest-growing-free-flowering kinds that will in a single season form a stout bush capable of producing flowers in quantity:—Jean Ducher, (see annexed illustration); Perle des Jardins, straw colour; Marie Van Houtte, yellowish-white flushed with rose; Anna Ollivier, rose-tinted flesh; Madame Camille, salmon-

tinted pink; Catherine Mermet, flesh colour; Madame Villermoz, creamy white.

I noticed here an interesting sport from Baroness Rothschild, pure white, a counterpart in colour of Mabel Morrison, but a full Rose, whereas Mabel Morrison, as I have seen it, has not more than half the requisite number of petals. The Victor Verdier class of Roses, of which Captain Christy may be taken as an example, will not grow at all in the Cheshunt soil, and in a good many other places in such a cold season as this.

The work of budding Roses in the Cheshunt Nurseries is no slight affair; twelve men and as many boys tying have been engaged in the operation all through the season. A quarter of a million stocks of various heights and kinds were this year planted, and with the exception of those that have failed to grow have been budded, amongst them the seedling Brier, of which there are 30,000. The way this stock is operated upon may interest the uninitiated. The budders are preceded by boys who scrape away the soil below the collar of the plants to the depth of some 3 in., and it is in this smooth upper portion of the root that the buds are inserted. The advantage of this stock, not alone for Tea varieties, but for the great majority of Hybrid Perpetuals, is evident, as from the first it is well furnished with plenty of feeding fibres near home, enabling it at once to fully sustain the Rose worked upon it (so different from the half rooted standard stocks), and from the same cause it is much better able to bear transplanting with little check.

T. BAINES.

GARDENING FOR THE WEEK.

Flower Garden.

Auriculas.—Some complain of losses amongst their plants this year. If the plants were out of doors no doubt the drenching rains would rot the roots, but no Auricula fancier would trust his plants out of doors in such a season as this. Under glass the greatest pest to them is green fly, and it is astonishing how soon this insect will spread over a frame and destroy the plants. We were nearly losing some valuable plants from this cause alone this year; the pest spread over the under sides of the leaves so much that they were nearly covered with them. Whenever a trace of green fly is seen it ought to be destroyed at once. Water should now be carefully administered; no plants should receive any unless they are actually rather dry at the roots; the woolly aphid that attacks the roots will be likely to appear on plants that have become rather checked from lack of root moisture, and the necessity of keeping all the plants rather dry at the roots will further encourage the pest. Lose no time in shaking all the soil from the roots and washing them well with soapy water, afterwards washing them with clean water. It is easily destroyed.

Carnations and Picotees.—Layering if not yet done should now be finished as soon as possible. There have been great losses amongst the plants this year. Weak growers have succumbed altogether to the inclemency of the weather, and I hear of some cultivators who have nearly lost their entire collection of all sorts. It is very desirable that seedling raisers should save their seeds from plants with strong constitutions as well as from those that have the finest flowers. Quality in the flowers is of great importance, but this is of little use if the plants cannot be kept in good health. The old yellow ground Picotees were of such weak constitutions that it was almost impossible to retain them in collections from this cause. Now we have the new strain introduced by Mr. Turner, of Slough, possessing higher points of excellence than have yet been attained in the flowers, whilst as regards constitution it is as good as that of the border Cloves.

Pinks.—See that the plants raised from pipings in boxes are now planted out in a warm position, allowing about 4 in. between each plant. The Pink in its young state likes a fine sandy soil, and in planting press it rather firmly round the roots. We had much difficulty in getting good pipings this year, and have taken the old plants out of their beds and replanted them; to plant out again in their permanent position early in October.

Hollyhocks.—No further instructions are wanted as to culture than those given a few weeks ago. The late damp weather caused the flowers to decay almost as soon as they opened; if these are not removed at once they are unsightly. Cuttings of scarce varieties may be put in as soon as they can be obtained, either as eyes from side branches or shoots from the base of the plants. Seedlings may yet be planted out to bloom next year. Usually late plants, if fairly well established, stand the winter better than those that are too strong.

Pansies.—These are now being much sought after, and they well deserve all the attention which they receive. See that a goodly

supply of cuttings is put in, so that there may be a good reserve of them retained in boxes under glass. We lost two-thirds of our named varieties last winter from wet and frost combined. If the plants are not required to make good boxes in winter, there are always plenty of less fortunate neighbours glad to accept them.

Polyanthuses.—The plants that were potted from the open ground a fortnight ago are now making plenty of new roots round the collar, and this cannot happen without a corresponding top-growth. All they require now is a good supply of water at the roots, and keeping the leaves clear of green fly and red spider.

Hardy Cypripediums.—The leaves and stems of these plants have mostly died down now, and when this happens growers are sometimes recommended to dry them off, which is often another name for killing them. The beautiful *C. spectabile* is not likely to be dried off in a wild state, and why should it undergo that process under culture? I plant some species of Moss over the surface, and this is kept green and growing; the soil is always moist, but not so much so in winter as it is during the summer months. It is unwise to repot them just yet—rather delay repotting until after the shortest day is past. Merely keep the plants cool and moist at present.—J. DOUGLAS.

Indoor Fruit.

Vines.—Early Vines that are to be started into growth in November ought now to be at rest, a condition which will be more effectually induced by early pruning; at the same time, such pruning ought not to be done till the wood is hard and brown, and the foliage manifests a disposition to die off naturally. If the borders require any renovation, now is the time when such work should be done, and outside borders should be either thatched, covered with shutters or lights, in order to throw off rain and prevent the roots from getting chilled. Inside borders, which are always preferable for early or late Grapes, must not, even though the Vines are at rest, be allowed to get sufficiently dry for the soil to crack, but for a time the border may advantageously be kept on the drier side of a medium state of moisture. Pot Vines intended for early forcing should now have full exposure to the atmosphere. A south wall, on which the canes can be tacked, is the best position for them, and heavy rains can be ward off the pots by placing slates or tiles over them, but avoid over-dryness. It is still cold, sunless, and wet, and Grapes that are fully ripe require as much attention with respect to the removal of bad berries as is usually the case in November. Under the circumstances, fire-heat and air, on every favourable occasion, are the best aids to good preservation. If ever the weather deigns to be favourable again, dispense with fire-heat at once, and give all the air possible. Constant fire-heat is still an absolute necessity in order to ensure ripeness in late Grapes before the end of this month. Keep the laterals thin, to allow all the light possible to play on the fruit, for without it perfect colour is unattainable, particularly in the case of Mrs. Pince, Lady Downes, and Gros Colman.

Pines.—Pot culture of these has at least one great advantage over the planting-out system, viz., that of admitting of a number of plants of about the same stage of growth being arranged in separate compartments and given the treatment best adapted to any particular period of growth; and at no other time of the year more than at present is the separation of plants in the different stages necessary. For instance, many Queens have completed their growth, and now require to be kept comparatively both cool and dry to ensure their showing fruit when started in December; others of the same variety are in full growth, and require a free supply of humidity and warmth; whilst those swelling off fruit require special treatment, both as to airing and watering; hence the advantage, and indeed the necessity, of being able to group the varying growths in separate compartments. There is still so little sunshine that plants fruiting must have abundance of artificial heat to induce them to swell rapidly. Deformed fruits and improperly developed pips are oftener the result of checks received through sluggish growth than from the want of root moisture; at the same time care should be exercised in order that there may be no lack in that respect. The bottom heat ought not to be less than 80° or the top heat lower than 70° on the coldest nights; the closing-up day temperature may reach 95° with sun heat. Succession plants in free growth, such as those that are expected to fruit during July and August next year, ought to have the same liberal treatment as those swelling off fruit; but guard against a weakly growth—first, by giving air freely whenever the weather is suitable, and next by affording the plants plenty of space in the beds. Those that have their pots full of roots and that have completed their growth now require a short season of rest, induced by a partial withholding of moisture both at root and top, and this, with free ventilation, will at the proper time have the desired effect, that is, of causing them to show fruit as soon as heat and moisture are renewed. Suckers that were taken from the early

summer-fruiting plants will now require repotting in order that the roots may get well established in the larger pots before the advent of winter. They require a briak bottom heat and very little water till the roots have started into the new soil; but they may have a syringing overhead daily at closing-up time. Shade the plants from the direct rays of the sun for a week after repotting.

Figs.—In most cases the second crop of fruit will now be approaching maturity; syringing must therefore be discontinued and a circulation of warm air constantly kept up to impart flavour. Should sunless weather still continue, fireheat must be applied, and this will enable air to be given night and day. If the borders are inside they must not lack moisture, and what water is given must be at least of the same temperature as that of the soil—a few degrees warmer would be all the better. Outside borders will need coverings to throw off heavy rains. No further stopping of shoots will now be required; but after fruiting any naked shoots may be cut right out, and this will give the new growths a better chance of ripening. Trees in pots that have been placed in the open air will require protection from the heavy rains which we are constantly having; indeed, if such weather continues much longer, they should be again placed under cover.

Peaches and Nectarines.—It will be difficult to get the wood of these fully ripened in late houses this season, for the growth is both more profuse and more luxuriant than usual, and this in spite of an extra amount of stopping. The only way of aiding maturity will be as soon as the fruit has all been gathered to cut out all useless spray and shoots, tying out the remainder thinly, and then to apply artificial warmth, accompanied by a moderate amount of ventilation, till the wood begins to get brown and hard; the trees may then be gradually inured to bear full exposure. Though the fruit is gathered, inside borders must still receive good supplies of water, and syringing must be resumed to keep down insects, and so preserve the foliage in a healthy condition till the fruit-buds are well developed. See former notes as to the requirements of early and succession houses.

Strawberries.—The dull wet weather which we are still having is inducing a strong sappy growth, which will be most difficult to ripen; hence, seeing that sunshine is so great a rarity, other steps must be taken to attain maturity. First and foremost, the plants should have abundant space, in order that air may play about the foliage. The pots should be occasionally lifted, to prevent any roots entering the ashes or gravel on which they are placed, which would not only cause greater leafage, but delay the period of their getting root-bound, for until that takes place the maturity of the crowns is very problematical. As to placing them under glass, very few have that convenience; certainly we have not, but if we had, this is the kind of season in which we should do so. Keep all runners persistently pinched off, and pull out weeds as soon as perceived, for if left to get large there must necessarily, on their removal, be a certain amount of mutilation of surface rootlets. If after heavy rains any are water-logged, turn out the plants and rectify the drainage, for there can be no healthy root action whilst the plants continue in such a condition.—W. W.

Kitchen Garden.

In a well-managed kitchen garden what is termed the busy season extends throughout the year, but if there ever were a slack time it would be during the present month, when, for the most part, all winter crops have been sown or planted, and others, such as Onions, Potatoes, &c., harvested. This year, however, any spare time will need to be utilised in the destruction of weeds which abound in all directions, and no wonder, seeing that there have not been throughout the whole spring and summer six days consecutively of fine weather. It has, therefore, been impossible to use the hoe for their destruction, and though handweeding is a slow process, it is the only sure preventive of an abundant crop of weeds another year or even years, and this prospective evil should act as an incentive to getrid of them by some means or other ere they seed. All Potatoes of whatever kind ought now to be lifted. All ours have been got up, and I regret to say that the yield is not more than half of that of last year, whilst of most varieties quite two-thirds are diseased, and of the following kinds there is not one sound tuber: Grampian, Rector of Woodstock, Blanchard, and Cattell's Eclipse. Of the following kinds there is not a diseased tuber, and consequently these only will be grown in quantity next season, viz., Advance, a handsome Kidney of fine quality; Sattin, a Magnum Bonum, another excellent late Kidney; Vicar of Licham, a blue-skinned flattish-round variety, packing both in form and quality of Peterson's Victoria, and a round seedling sent here for trial by a firm of seed merchants, and which is, in all respects, excellent. The following kinds were but slightly diseased, viz., Early Rose, Myatt's Ashken, Schoolmaster, Emperor, and International. The winter Greens and Broccoli planted between the

rows of Potatoes will now require earthing up. Regarding the utility of this practice there can be no doubt that it is highly beneficial, both as a support against wind and as favouring the production of a large amount of stem rootlets, which are of the greatest service to the plant. Continue to plant all ground as it becomes vacant either with Coleworts, Cabbages, or Sprouting Broccoli. If not yet sown in sufficient quantity seeds of the following vegetables should be got in at once, viz.: Chick Castle and Black Stone Turnips, Bath Cos and Hardy Hammersmith Lettuces, Early French Horn Carrots, Turnip-rooted Radishes, and Winter Spinach. Thin out former sowings as early as the seedlings can be handled, and keep the surface soil about them open by hoeing whenever the ground is sufficiently dry to admit of that being done. August-sown Cauliflower plants ought not to be left in the seed bed to become drawn or weakly; a good sturdy plant that will winter well can only be ensured by pricking out early. If the ground be ready for them, those that are intended for wintering under the protection of handlights may be planted in that position at once, and the lights can be put over them any time before there is danger of injury from frost. Generally we get finer Cauliflowers, and very nearly as early, by wintering the plants at the foot of a south wall, and planting out as early in March as the weather will permit. The cold nights, sunless days, and excessive rainfall are too much for late Peas and French Beans; they do not grow a bit, and therefore those of the latter in pots and frames must be pushed on as quickly as possible, and other sowings should be made to keep up a successional supply. There will not now be much wheeling or other traffic likely to injure walks or paths, and all should therefore be made tidy. Box edgings should be clipt, also hedges and all decaying vegetable refuse should be removed to the manure heap.—W. W.

Extracts from my Diary—September 8 to 14.

FLOWERS.—Potting a few more Bouvardias. Re-arranging plant houses, and otherwise putting them in good order. Cutting out Brier suckers. Putting in cuttings of Pelargonium Manglei and Mrs. Pollock. Potting Roman Hyacinths. Looking over Pelargoniums in boxes and picking off decayed leaves and flowers.

FRUIT.—Gathering Lord Burghley Apples. Sweeping Peach trees in houses with a new broom to divest them of leaves in order to ensure wood ripening. Gathering all ripe Peaches and Nectarines. Looking over Strawberries and pulling off all runners and decayed leaves. Straightening verges of walks in orchards. Gathering King of the Pippins, Warner's King, and Roinette du Canada Apples, and Beurré d'Amanlis Pears for dessert. Tying and stopping Melons. Gathering Marie Louise Pears for dessert. Watering Vine border in late house. Cutting out shoots and leaves of Figs to admit light and air.

VEGETABLES.—Thinning Turnips sown for winter use. Sowing main crop of Prickly Spinach. Looking over Haigh's Kidney Potatoes in pits to see if any are diseased, and removing any that are infected. Gathering Scarlet Runners, Radish pods, Onions, &c., for pickling. Sowing Mustard and Cress. Cultivating ground preparatory to planting winter Lettuce. Soiling Mushroom bed with about 14 in. of loam. Earthing up Celery. Sowing Wood's early frame Radish in prepared frame. Turning Onions on beds to dry. Storing Onions away in chamber for winter. Cutting off stems of Globe Artichoke and hoeing and clearing ground about them. Preparing soil for Mushroom beds. Sorting Magnum Bonum Potatoes and storing away seed. Sprinkling a little lime over Onion beds and cultivating ready for planting Cabbages. Tying winter Cucumbers. Pulling up old Pea haulm and manuring ground for winter digging.—R. GILBERT, *Burghley*.

Coal-ash Walks.—Good, sound, dry walks are a necessity in all garden grounds, in order that the work necessary in them may be carried on with comfort during all weathers, and although their is nothing like good gravel for walks in pleasure grounds, it frequently happens that, from the difficulty of getting gravel in quantity within a reasonable distance, the kitchen garden walks have to be made of whatever is most abundant. After trying all sorts of materials in different countries, it was found that nothing makes a better path than ashes. The way in which we use them is to form Grass verges 1 ft. wide and about 1 ft. deep. In the bottom of the walk are put brickbats, stones, or other rubbish. On these a good layer of clinkers is spread, and the level well tolerably fine, when a good coating of sifted coal ashes is spread evenly over the surface, and rolled down. These form one of the pleasantest paths on which to walk, wheel, or cart, that it is possible to have. Weeds are not troublesome, for the material has been changed by passing through the furnace, and a few seeds blown on to the surface, if genuine, they can be easily removed, leaving a smooth

THE KITCHEN GARDEN.

ASPARAGUS CULTURE.

(Continued from p. 171.)

Planting.—We plant Asparagus both in the spring and autumn. The autumn plantings do not succeed in light soils; most of the young shoots die down during the winter, and those which resist present but a wretched appearance. In cold climates autumn planting meets with but little better success, even in the case of dry soils; this is due to the fact that Asparagus, being a succulent plant, does not grow in the winter like woody-fibred plants, and that it very often rots when it is placed in the ground too soon. It is only in southern climates that it may be planted in autumn or winter. Whether you plant in beds or borders, the proper position of each stool must be marked off with the measuring line and dibber. Having completed this part of the operation, bring a little light soil over the part marked, so as to form a little mound as shown at *М М* (fig. 4) of about 2 in. in height, and in the form of a flattened sugar-loaf, continuing the operations to the end of each line. You next take a stool and spread it out on the little mound, arranging the roots in such a manner that they neither touch nor cross each other, covering them up to a depth of from 3 in. to 4 in. with fine, light soil. Press the soil down firmly over the roots so as to bring them close together



Fig. 5.—Asparagus trenches after planting.

so that the stool may not be disturbed, as well as to drive out all the air from beneath the soil, and the operation is finished. It now only remains for us to fill up the empty spaces between the mounds with earth, smoothing the surface of the bottom of each trench with the rake level with the line *B*, as shown in fig. 5, that is to the depth of 4 in. Fig. 4 shows a section of the beds before they are planted, and fig. 5 a section of them after the operation has been completed, with the exception that the stools and mounds are shown while they are really covered up by the soil which has been taken from the mounds, where they formed an angle on a level with *Н Н* (fig. 5). The stools consequently are covered up as far as the dotted line *B* 10 that is to say, to the depth of an additional 4 in., including the little mounds which have been flattened down by the superincumbent pressure, and are now only from $\frac{1}{2}$ in. to 1 in. thick. For planting under walls on the level surface we dig holes of 8 in. in depth, refilling with 1 in. of light earth, and plant according to the directions given above, filling up with $3\frac{1}{2}$ in. to 4 in. of earth. Small mounds are placed round the plant so as to attract the humidity of the soil, if it is dry, and on the mounds must be formed others, or the Asparagus heads will be too short. Some authors recommend that the stools should be planted as soon as they are pulled up, but this is an error, for Asparagus takes root much more readily when it is faded. Like all succulent plants it is apt to rot if it is planted when quite fresh. It has also been observed that plants sent from a distance strike root much more easily than those taken from a plantation close by, and produce much better heads. We have ourselves planted on the 16th of April stools which were taken out of the ground on the 20th of the previous February, and the plants which they produced were in all respects most satisfactory.

TREATMENT OF YOUNG PLANTS.

First Year.—The operations to be performed during the first year are limited to keeping the Asparagus plantations constantly free from weeds, hunting down the *Crioceris Asparagi*, as explained farther on, and placing sticks at the bottom of each stool as soon as the stems are 18 in. or 20 in. high. For the latter purpose we insert a little stick of wood at 12 in. or 14 in. from the stool so as to avoid all danger of hurting the roots, bending the stick over until it is in close proximity to the shoot we desire to protect. At the point where the stick touches the shoot we tie them together with a piece of bast or other tying material. This operation is for the purpose of preventing the wind from disturbing the stool in the soil by shaking the shoot backwards and forwards. This precaution is very necessary in localities exposed to high winds, but it is much too often neglected, and the Asparagus suffers accordingly. Where Asparagus is grown on a large scale, this support is dispensed with, the stool being covered up with fresh soil in the month of July. As it often happens that late shoots issue from the stools, they also should be fixed to a support as they come up. This operation is also unnecessary when the plant is grown on a large scale. If very dry weather sets in, we may throw on the stools 3 in. or 4 in. of soil taken from the mounds. The rain and the action of the hoe cause the soil of the mounds to fall into the trenches, so that the stools which were once covered with 4 in. of soil, at the end of the season become covered to the depth shown by the line *c*, fig. 5. In the month of November the surface of the trench is brought down to the level of the line *B*, fig. 2, or even below it, by throwing back the soil on to the mounds at each side before manuring.

Second Year.—In the month of March, after having dug up the mounds, we throw a few inches of earth into the trenches, raising the level to between the lines *B* and *c*, or even up to *c* (fig. 5), but not higher. In performing this operation we must be careful not to touch the young shoots, which will have just been formed, for if we hurt the stool the crop is endangered. During this year the same ordinary operations of weeding, hoeing, &c., are performed as described in the directions for the first year, keeping a sharp look-out for the advent of the *Crioceris*. In the month of November the trenches are dug up by taking up the soil as far as the line *B* (fig. 5) if the stool has not become raised, but in such a manner as to leave a good 2 in. on the roots. We then scatter throughout the whole length of the trenches either well-rotted manure, oil cake, or artificial manure in the proper proportions, throwing back the soil on to the mounds, as in the first year. The winter being over, the trenches are filled with from $1\frac{1}{2}$ in. to $2\frac{1}{2}$ in. of earth, so as to bring them to the level of the line *B* (fig. 5), making the arched tops as high as the line *D*, describing the curve shown by the dotted line. Before making these mounds we must take away the old shoots by detaching them gently from the stool.

Third Year.—During the third year we proceed as during the first, with the exception that if the plantation has prospered we may gather our first crop, taking only two or three heads, but not more, from the healthiest-looking stools. In the autumn the trenches are cleared in the same way as in the first two years, and the mounds then are manured, as will be described presently. The mounds are lowered as during the first year, but we must only manure lightly. The weaker-looking stools are marked with a stick, so that they should not be earthed up in the coming spring, and so have nothing gathered from them. As for those which are strong and healthy we stick two or three old Asparagus heads into each stool, taking one out for each young head that we gather, so

as to keep count of the crop. This is only done during the first year.

Fourth Year.—This year's operations coincide absolutely with those of the second year, with the exception that we may gather one crop during a period of three weeks, taking care, however, not to try the weaker stools too much. The trenches are manured during the winter, and when spring arrives we scatter over them a little soil, so that the stools may be buried to a depth of about 5 in. For this operation we must refer the reader to the Calendar of the Asparagus Cultivator.* From this period the stool producing its roots at the collar has a constant tendency to raise itself. It is for this reason that, having cleared it of soil in the autumn and earthed it up again in spring, in fifteen years the mounds will be lowered entirely to the general level of the beds, as indicated by the line н н н (fig. 5). In order to earth up the stools, we are consequently obliged to take the soil away from the mounds, which, so to speak, now become lower than the stools themselves. The earthed-up stools now reach to the height of the line е (fig. 5), and even to the line р, if the beds are very old. Early Asparagus rises, as a rule, about $\frac{1}{2}$ in. per annum, and the Late about half that distance.

List of operations to be performed after the fourth year :

- 1.—In November take away the tall shoots after having cut them away about 12 in. below the soil.
- 2.—During the winter we must break down the mounds at least every three years.
- 3.—Rebuild the mounds.
- 4.—Manure must be distributed.
- 5.—Make up the bottom of the trenches at the end of the winter (say from the 15th to the 20th of March), by covering them with 3 in. or 4 in. of soil that we took out of them and threw on the mounds in the autumn.
- 6.—Towards the end of March take away the old heads and form arched-headed mounds of 7 in. or 8 in. in depth over the stools.
- 7.—Hoe as often as necessity requires it; but, whether weeds are troublesome or not, the whole ground should be well hoed four times a year from March to October, namely in April, June, July, and September.
- 8.—Break down the small round-headed mounds immediately after the crop has been gathered, except high winds are liable to break the shoots, in which case it is better not to unearth.
- 9.—Support the shoots with sticks if necessary, but this is not needful when the plant is produced on a large scale.

Digging.—Under this heading may be included both the breaking down and building up operations connected with Asparagus culture, as well as the frequent hoeings which must be practised. The hoeings are a kind of superficial digging which only penetrated a slight depth below the surface, and are performed by means of a shallow hoe or even a rake. The other two operations are performed with the large hoe and flat-toothed fork. This latter instrument is but little known and used, but it is of the greatest possible service, and we recommend it highly to Asparagus growers.

Shallow Hoeing is a very simple and very easy operation, so well known as not to need description. We ought, however, to remark that it is essential to use a very light tool and not to disturb the earth to so great a depth as is done in certain localities. It is only necessary to penetrate to a depth of about $\frac{1}{2}$ in., so as to cut off the weeds at the crown. If we hoe more deeply than this we shall not only bring up to the surface a number of seeds which will promptly ger-

minate, but we shall cut the weeds too far below the collar, at the same time pushing them back again into the soil, so that after the next shower of rain we shall be surprised to see a large number of them lifting up their heads once more. Digging operations require a much greater amount of attention than light hoeing. The labourer, armed with his fork, sits astraddle on the mound and stirs up the soil at the sides, throwing a little of it behind him without destroying the shape of the mound too much, and taking care not to hurt the roots of the Asparagus plants, which he may easily do if he works below the surface of the soil in the trenches.

In sandy situations, or very soft soils, there are certain strong-growing weeds that the flat-toothed fork is powerless to destroy; in this case the large broad hoe must be used, but it requires long practice to handle this implement properly. It is a very tiring tool to use, but it completely moves the earth, for it makes a hole like a spade. The hoe has the advantage of not interfering with the form of the mound, so that it leaves no work behind it. But, in spite of every precaution, the form of the mound is more or less spoiled by digging operations, so that it must be restored to its original shape by the aid of the flat hoe or the small hoe. Careful growers overturn their mounds every year; others, every two years; while others only perform this operation once in three years. There is no doubt, however, that the more the earth is disturbed the more active is the growth of the plants.

Manures and How to Use them.—By adopting the method of culture described above, we need only use a comparatively small amount of manure, hardly double the quantity of that employed for root crops—Potatoes, for instance. All manures are apparently good for Asparagus; there are, however, certain precautions to be taken in using them. For instance, farm-yard manure should not be employed in too fresh a condition, as it would affect the roots and certainly spoil the crop for two or three years. We must also beware of employing other manures of too active a nature, such as lime, sheep's, asses', or mules' manure in too large doses. We may obtain excellent results on certain soils by using a double dressing composed of one-half stable manure and one-half dried blood, guano, burnt seaweed, &c., but it must be tried on a small scale before applying it to the whole plantation. The ingredients are not to be mixed together, but applied separately, the blood, guano, or seaweed being used first. A good deal has been said about the use of common salt in Asparagus culture; but we have tried it several times without being able to come to any exact opinion on the subject. We should consequently advise Asparagus growers to make a trial of it on a small scale before applying it to the whole of their beds, in order not to run the risk of accident. There are two methods of applying manures—the first by placing them in the trenches; the second by distributing them over the mounds. The following is the general mode of procedure: We must always be careful to manure either before or at the beginning of the winter, in order that the rains may have time to dissolve the more soluble portions and carry them down to the roots. If we defer the application of the manure until spring, the good effects of it will scarcely be apparent, or it will not be perceived until a year has elapsed. When we adopt the system of dressing the trenches, we begin by taking off the top of the small mounds, and, this being done, we spread the manure throughout the whole length and breadth of the trench, taking care to keep the stools free from it, and more especially the spots from which the young heads will spring, as the immediate contact of manure of any kind with them will rust them and render them unsaleable and uneatable. The quantity of manure to be used varies according to circumstances. In the case of short stable manure,

* See a future number of THE GARDEN.

from which all the long straw has been removed, it is applied in a layer of from 1 in. to 1½ in. in thickness across the whole width of the trench, or only from 16 in. to 20 in. in length, according to the age of the stools. At Argenteuil a cubic foot of night-soil is used for every five or six stools, that is to say, about a cubic yard for every 140 stools, once in two years. In spring, the soil which was taken during the process of unearthing, is replaced, so that the manure now becomes covered to the depth of from 3 in. to 4 in. In manuring the mounds we must begin to open them up as soon as possible, that is to say, towards the end of October. This is effected by cutting a number of trenches 14 in. in width and of such a depth as to reach to the bottom of the main trenches without injuring the roots of the plants. The soil which is taken out of these small trenches is deposited in the main trenches between each stool of Asparagus, so placed as not to cover up these latter; in fact, so that it may be gathered up again when necessary without endangering the young shoots which mark the position of the stools. These small trenches being made, the manure is thrown into them to a depth of at least 2½ in., the extra soil is replaced, and the mounds are trimmed up. The trenches are opened up either with the flat hoe or with the spade. The flat hoe is the most difficult to manage, but the work is done much quicker than when the spade is used. We should advise Asparagus growers to use the flat hoe in localities where the soil is pretty free from stones. In stony soils the trenches are somewhat difficult to open up, and we are sometimes obliged to have recourse to the large-toothed fork to stir up the soil, which is afterwards carried away by the shovel. In the latter case we must manure much more generously, and only undertake this operation once every four or five years, in order to avoid a too frequent recurrence of the expense and inconvenience it gives rise to. It may be performed during the fourth, eighth, and twelfth years.

GODEFROY-LEBŒUF.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Lettuces Seeding.—The crop of home-grown Lettuce seed this year will be very partial—indeed, as far as the Cos kinds are concerned, probably a failure. The Cabbage kinds invariably start earlier, but even these have had their blooms so much washed by the rains as to render the production of seed doubtful. As evidence of the shifts to which our market gardeners are driven to obtain seeds of their famous Cos strains, I remarked a few days since near Kew in a large garden, where Lettuces are grown in enormous quantities, that over a quantity of flowering plants high stakes had been fixed tripod-fashion, and beneath these and over the heads of bloom were suspended large bell-glasses or cloches, to protect the bloom from the heavy rains. This is, however, but a small matter in the mass of cultural difficulties with which market gardeners have to contend this season.—A. D.

Mushroom Beds.—The best season for making up Mushroom beds has now arrived, and where a winter supply is desired a succession of good beds made up of sufficient thickness to retain the heat for a considerable period should be made at once. If the manure is sweet and in good condition a temperature of from 80° to 90° is not too much, and some efficient means of keeping the house up to from 55° to 60° should exist, or the spawn will not run, but remain dormant until spring, and possibly be condemned as useless.—G.

Autumn-planted Potatoes.—A "Country Parson" writing in the *Times* the other day states that "generally speaking, the best time to plant Potatoes is late in October or early in November. The reason for doing this is not far to seek. Potatoes, if stored in a cellar until spring, shoot forth long roots or filaments, called by different names in different counties, and thus expend their vegetative power before they are planted, and are thus far more liable to disease. They are, in fact, sickly Potatoes; and matters are not much mended by storing seed Potatoes in a garret, for there they shrivel, and thus lose much of their strength; whereas, if planted in the autumn, they are kept alike from the outward air and from growth, and thus come out of the ground in the spring much stronger

and better plants than those that are put in early in spring. I have planted my Potatoes in autumn for the last thirty years, and thus speak from experience. Autumn planting was new to the farmers in my neighbourhood, among whom I introduced the practice, who all declare they never will give it up, as it yields a better and safer crop. All one has to do is to plant the Potatoes 2 in. deeper than in the spring. A farmer who planted his crop last autumn after this fashion told me that 'not one Potato missed,' and the winter was both hard and long enough to try Potatoes and most other things."

Tomato Disease.—The identity of the Potato disease with that which affects the Tomato is unquestioned. The plants are members of the same family, and evidently subject to the same diseases. It is only within the past four years that the disease has shown itself upon the Tomato to any appreciable extent, but last year it was so destructive that acres of plants were quite destroyed ere a ripe fruit was produced. When it is thus prevalent, plants grown in the open ground—that is, trained to stakes or laid on straw—have no chance whatever. It generally shows itself in the Tomato as soon as the Potato haulm has disappeared under its destructive operations, thus showing that it prefers to exist upon the Potato before it attacks the Tomato. This year Tomatoes are very late, and the prospect of getting a crop of fruit is rendered very doubtful by the gradual progress of the disease over the leafage. As for a remedy, there is none at present, and the only way to get a good crop is to grow Tomatoes under glass. Even here, however, if much exposed to the air or especially to drip, the disease will soon show itself. I found it to be so last year under frame-lights, and the same indications of disease in the Potato under glass were also shown where there was drip. That the minute spores or germs of the fungus are carried in the air and in rainfall there can be little doubt.—A. D.

—The disease is a fortnight later in making its appearance this year than last. I first saw it on August, the 29th. It will, however, cause no loss in regard to the crops, as we shall not cut a fruit out of doors large enough for use this year. Last year the disease destroyed most of the crop outside; experience of this sort shows one the advantage of having some under glass. Just recently I saw some producing useful fruit in a Peach house planted between the trees on the back wall, the trees being half standards, or one may grow them in large pots, tying them to stakes, or planted out in cold frames, putting a trellis of some sort to run over; they deserve to be more extensively grown under glass than they are seeing how useful they have become and the length of time during which they continue in bearing. From one set of plants last season grown in pots, trained to the back wall between some young Peach trees in a house, we cut good fruit from the middle of June to the middle of March, and at the end of December all green fruit was cut and put on shelves to ripen. We have some now in the same place doing well, and if we have them equally long we shall not feel the loss of the outside crop. The sorts which I grow are Trophy, Hathaway's Excelsior, and Green Gage.—J. F. C.

Lifting Potato Crops.—Now that the Potato disease has set in, in all quarters strong arguments are adduced in favour of early lifting and storing, but in the main I agree with "A. D." (p. 206), that, except as regards a few early sorts, it is not practical to lift the main crop for winter and spring consumption in time to be of any use as regards warding off the disease. This year Potatoes, like other crops, were late in making their growth, which was at its height when the disease suddenly struck them. The American Rose and other soft, heavy-cropping sorts were quite leafless in a few days, and many of the tubers were more or less affected according to the nature of the soil; the heavier and more retentive as regards moisture the worse they are. Early Kidneys, such as Veitch's Ash-leaf, although checked in growth, have not become so badly blighted, and the latest crops of Regents and Victorias have continued to grow, although the haulm is partially affected, and must, therefore, check and reduce the amount of crop; but as far as lifting crops with the view of saving them from disease is concerned, there is little to be gained, as if the disease is in them, although not perceptible, they will be sure to rot, whether lifted or left in the ground. I find the Victoria Regent to resist the attacks of the disease and to keep healthy in the haulm the longest of any of our main crop varieties.—J. G.

The Benefits of Excursions to other localities where others are following similar pursuits to our own are not to be measured by the profitable hints we may pick up, but there is a mental and bodily relief that comes from a change of scene which will allow one to return to the later work of the season refreshed, and with a spirit of content, for one who travels with his eyes open cannot fail to see that others, as well as himself, have their discomforts and drawbacks, and he is all the more disposed to meet his own with a brave spirit.—*American Agriculturist*.

THE INDOOR GARDEN.

NEWLY-IMPORTED ORCHIDS.

UNTIL recently the importation of Orchids was usually confined to nurserymen and a few private individuals who happened to have friends out in the Eastern or Western Hemispheres where the more popular kinds are plentiful. Those that were imported by nurserymen used generally to be kept in their possession until they had made more or less growth, and thus become established before being sold, but the vast quantities now brought into the country are sold by thousands almost weekly as soon as they arrive before sufficient time has elapsed for them to have made any growth. These get into the hands of beginners as well as those of experienced growers, and I may here observe that were I bringing together a collection of these plants I should very much prefer good stout imported plants—not the infinitesimal bits into which they are often divided—to confining my purchases, as frequently used to be done, almost exclusively to plants that had been long in the country, often during the time in several hands subjected to very different treatment, which not unusually was anything but calculated to give them a robust character, in the absence of which they are of little value. One advantage in imported plants is that they will succeed with much less shading, more air, and less heat, all conducive to continued healthy vigour, than Orchids long in the country, the whole existing growth of which has been made under conditions the reverse of these, and which, if subjected to treatment such as that recommended for imported plants to be grown under glass, would, in all probability, make little progress, or rather for a time grow smaller instead of larger by a considerable loss of their soft watery leaves. There is something more than this in imported Orchids, as there is also a sort of fascination in uncertainty, especially where the chances are that something better will turn up, and in nothing is this more fully exemplified than in the case of imported Orchids, amongst which many of the finest forms and varieties are continually making their appearance. The majority of newly-imported Orchids are anything but in a condition that gives them an inviting appearance, as they are almost invariably much shrivelled, dirty looking, and to the uninitiated in such a state as would give little hopes of their regaining strength and vigour. The desire to make them start into growth, especially in the case of those who have had little to do with plants in a similar condition, is often fatal to them, inasmuch as if they are at all hurried the chances are that they will die outright. The treatment given is too frequently based upon what the temperature during the growing season would be in the countries from which they come; but it should be borne in mind that Orchids, although most tenacious of life, have, when they reach this country, been usually for months subjected to ill-usage, and any undue hurry under such conditions is almost certain to result in failure.

When Orchids come to hand in the state in which imported plants ordinarily are, the first operation should be to cut away all dead portions of both leaves and roots, being careful in this that not a particle of either which has any vitality in it is removed; then the whole should be sponged over to free them from dirt and any insects that may be present. The artificial heat requisite to be given them will, as a matter of course, be dependent upon the time of the year at which they arrive and the countries from which they come; if cool kinds, such as will thrive in a temperature like that given to the majority of *Odontoglossums*, the warmth of an ordinary greenhouse will suffice, and if in the summer time lower than that, and the atmosphere should be kept considerably more moist, for the object is first to get the leaves and pseudo-bulbs into a plumper condition, which, as they have few or no active roots, can only be brought about through absorption by the leaves. To effect this in most cases it is better to lay the plants on some material that will hold moisture slightly than to suspend them from the roof; but to preserve the moisture in the atmosphere necessary to the plumping-up process just alluded to, it will be requisite to reduce the admission of air somewhat, and also to shade them when it is bright and sunny, but not to keep them so dark, or with the atmosphere so close and stagnant, as is sometimes done and from which bad effects follow. I have found nothing better upon which to place newly imported Orchids whilst thus recovering from their journey than a close-jointed stage of rough unplanned boards, which hold much more moisture than those that have been planed or painted, thus reducing a good deal the need for wetting the plants directly overhead. They are sometimes put on a layer of Sphagnum and it answers very well, but it should not be kept too wet, especially for the first week or two after the plants have arrived. Such Orchids as *Vandas*, *Aerides*, *Saccolabiums*, and *Angraecums* are often suspended head downwards, the object of thus inverting them being to prevent water lodging in the crowns or axils of the leaves. I have found all such species to do best hung up against

a wall where the air would naturally be more stagnant than that in the body of the house where there is more circulation, but this of course will all depend upon the condition in which the house is kept in respect to air. The custom with many is to allow the plants to remain in this way until they have commenced to make roots, but that is a mistake, for the young roots are so tender and susceptible of injury that it is impossible to pot them, and almost as difficult to attach them to blocks or pieces of wood, after they have begun to move, without damaging their root points. As soon as it is seen what will grow and what will not, I should recommend those progressing being at once attached to pieces of wood proportionate to the size of the plants, in all cases allowing the wood to which they are fixed to have sufficient length below the plants to admit of its being made firm in the pot and sunk well down into the drainage crocks and potting material. This making the plants quite firm in the pots is a matter of very great importance, for if they are so loose as to shake about when touched or the pots moved, the young roots before they lay hold of the soil will be sure to receive injury; for the same reason it is obviously necessary to pot them before their roots have pushed so as to admit of being damaged in potting. Quantities of valuable Orchids that reach this country with sufficient life in them to grow and get established I feel convinced are continuously sacrificed through not seeing that the first attempt at root formation receives no check, for the effort thus made—often feeble and weak—is frequently the last which the plants are capable of.

With *Cattleyas*, *Laelias*, a good many *Oncids*, and *Epidendrums*, the first season's growth, particularly in the case of plants that have suffered much in coming, or that have been divided into small bits, will be quite as satisfactory if fastened to blocks proportionately large for their roots to lay hold of, and with a little Sphagnum attached to assist in preserving sufficient moisture about them. By being kept thus suspended and out of pots until the first summer's growth is completed, or rather till the time when they are near commencing to grow the year following, when they may with advantage be potted, for with the exception of the comparatively few species found to succeed better altogether on blocks than in pots, there is no doubt that the sustenance which they receive from the peat and Sphagnum, used as potting material, into which their roots penetrate, enables them to get much stronger than they do when the extremities of their roots are unattached. This may be easily confirmed by observing the growth that a *Cattleya*, *Laelia*, or similar plant makes when it has extended beyond the limits of the pots, and the whole of its roots cling to the outside, or are not attached to anything.

In the case of strong, stout pieces of Orchids of this description, such as *Cattleyas* or *Laelias*, I have found it best to pot them at once previous to making any growth, as thus frequently a considerable portion of the young growths will flower, and the plants with little loss of time become established specimens. In like manner with the thick-rooted section, that is the true air plants, of which *Aerides* and *Vandas* may be taken as representatives, they should always be potted previous to either whatever living roots they may retain, when brought over, beginning to extend, or the formation of any new ones, for, having no pseudo-bulbs to support them, they are even more impatient of injury to their roots than those which have. With *Phalaenopsids*, wherein the whole plant consists of the leaves, a short bit of stem, and whatever living roots they may yet have, the chances of recovery except when received in a tolerably fresh condition are much less than those of the generality of other species. With them it is best to attach the plants to pieces of wood as soon as they have been subjected to the sponging and cleaning process directly they arrive; after that placing them in positions such as those suggested for the others, where they will be most likely to commence growth without delay, yet without hurrying them, will suit them perfectly. *Dendrobiums*, from the fleshy nature of their pseudo-bulbs and naturally greater vitality, usually bear the rough treatment entailed in bringing them to this country better than other Orchids; but in their case all dead portions of bulb and root should be cut away, and when properly cleaned they ought to be at once fixed to stout pieces of hard wood, such as will, as with the others, admit of being secured in the pots, and all that show indications of growing should be at once potted or placed in baskets, according as their habit of growth is erect or drooping, or the way in which they are intended to be grown, for it is well to bear in mind that erect-growing kinds, like *D. densiflorum*, *D. nobile*, and others of simple habit, are alike benefited by being hung up close to the glass, as are the pendent growers. *Cypripediums* and others of similar character should in like manner, as soon as their leaves commence to fill up a little, be potted before any roots begin to move, being careful that no water lodges in the axils of the leaves until growth has commenced in earnest. If a course such as this is followed with imported Orchids, treating them in a way that will slowly but gradually restore their weakened energies, and induce them to make growth, and, what

is of equal importance, also seeing that their first efforts at root-making are not interfered with, many valuable plants that otherwise would be sacrificed will be saved.

Pleiones.—As their new bulbs approach full size, gradually withhold water, but by no means cut off the supply too suddenly or before they are fully mature and plump, or it will seriously interfere not only with their flowering, but with their increase next year; as their breaking double seems a good deal to depend upon their previous season's growth being well ripened up before the leaves decay.

Sobralias.—These large gorgeous-flowered subjects are not now held in the estimation they once were; still there are few more effective plants in a collection, for though the individual flowers do not last long, when the specimens get strong they keep on giving a succession of bloom for weeks, and the fresh green appearance of their reed-like shoots contrasts admirably with the generally more quaint-looking forms. As the young growth approaches its full size, the bloom-stems that have flowered may be cut away, which will give more room to the advancing shoots. It is not well to remove them too soon, as it manifestly cannot but weaken the plants. It seldom happens that red spider causes much trouble amongst Orchids, but Sobralias are sometimes attacked by it, especially towards the autumn, when a somewhat drier atmosphere is being maintained. Their presence will easily be detected by the under leaves looking yellow and unhealthy. Where the pest happens to exist, clean water, if persevered with, applied through the syringe, laying the plants down on their sides, and turning them over, will clear them.

T. BAINES.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Eupatorium ligustrinum.—Where cut flowers are in request during the early winter months this plant should be grown. It is of very easy culture, and may be quickly grown into good large specimens. It is easily propagated from the half-ripened wood, the cuttings to be inserted in sandy loam and placed in a close frame. It will also strike readily in early spring. If a plant or two are placed in gentle heat they will furnish an abundance of cuttings. The most expeditious and easiest method of cultivating it is to turn it out during the summer months into a free, rich piece of soil—if of a rather stiff, loamy character so much the better, as it there acquires a more sturdy and vigorous habit than when planted in soil of a light description. A very sunny, exposed situation should be chosen, so that the wood may thoroughly mature, and the flower-heads be well advanced before the plants are taken up for potting. In hot weather they need copious supplies of water, and an occasional soaking with liquid manure will materially assist them. If the plants are kept well stopped in the early stages of growth, and plenty of space allowed for development, robust specimens—some 4 ft. high and 3 ft. through, well furnished to the base with foliage, and covered with bloom—will be the result. Such plants, when placed in a cool house at housing time, furnish an enormous quantity of flowers. I once grew about a score of large specimens, and when in bloom they certainly presented a very pleasing appearance, and were found to be of great service for supplying cut bloom, the entire sprays being well adapted for table decoration, and the individual flowers, when mounted two or three together, were useful in bouquets.—J. C.

White Lapagerias.—I presume that Mr. Baines doubts my statements (p. 132) with regard to the propagating of these plants. I can only suggest that he should visit Handsworth Nurseries when he has an opportunity, and see for himself. He will find, I think, that his experiences in the matter have been surpassed. I wish to say, however, that when I said it would be found the best plan to propagate Lapagerias like pot Vines, I did not mean the plants to be struck from eyes, but layered annually and potted. I am aware that propagation by means of single eyes or cuttings is a slow process, and have condemned the practice before in THE GARDEN. As to the number of shoots on two-year-old plants, Mr. Baines states that "even in the case of the very strongest plants it takes some time before one or two annual shoots are made." In reply to this I can only state that in the house to which I referred, I counted eleven shoots on one plant, and this and the other plants I was assured by Mr. Sibray, one of the members of the firm and the propagator, were layered from eyes in the autumn of 1877, potted last year, and again shifted on into large pots during the present season. Whether this particular plant was the red or the white variety I could not now be sure, as the house contained both kinds. There is a fine variety of the red Lapageria at Handsworth, as well as a white one, and this is extensively propagated also in the same manner as the white one. Here we have a white plant of the same age with nearly as many shoots, great and small, the

longest about 11 ft. or more. The number of shoots on these two-year-old plants is not so wonderful, in my opinion, as the number on the young ones, which produce even more in proportion to their age. Why did Mr. Baines give directions not long since in his "Gardening for the Week" for the management of plants from cuttings, when, according to his own showing, he had proved the superior advantages of the layering system "thirty years ago"? Permit me to say in conclusion that I did not make use of the expression given between inverted commas by Mr. Baines as mine. I said "some of these plants have ten shoots or more." I am not conscious of having exaggerated anything.—J. S. W.

Anguloa eburnea.—This is merely another name for a pale-spalled form of *A. uniflora*, otherwise also called *A. virginalis*, but in nowise structurally distinguishable from *A. uniflora* of Ruiz & Pavon's "Flora Peruviana," Syst. p. 228; Fl. Peruv., Prodr., p. 118, t. 26; Lindl. Gen. et Sp., p. 160, and of which a characteristic figure was published in the "Botanical Register" of 1844, t. 60. This plant, together with the pale golden *A. Clowesi*, Bot. Reg., 1844, t. 63, and the yellow blood-spotted *A. Ruckeri*, Bot. Reg., 1846, t. 41, is a native of New Granada and Columbia. Bateman, in the "Second Century of Orchidaceous Plants," t. 159, figures and describes *A. uniflora*, and remarks that "there are many varieties of this species, some of them of a purer white and much larger than others." The particular variety of *A. uniflora* he described as above is referred to thus:—"The flower is a dirty cream colour, tinged and spotted chiefly within with pink." Doubtless it is this tendency to variation which has induced horticulturists to give pseudo scientific names to the finer or supposed finer varieties of *Anguloa uniflora*, a practice too often resorted to at the present day in the case of other species, even by botanists themselves as well as by certain trade growers. Mr. J. Douglas (see p. 190) is perfectly right; there is no *Anguloa* known with wholly white flowers. "No! nor any other Orchid either." Britten & Gower in "Orchids for Amateurs," p. 222, attribute the specific name *eburnea* to Hooker, but do not give references, and it is just possible that it is a mere garden name. The name *A. uniflora* is, in the same work, attributed to Reichenbach—perhaps in error. Both these authors and also Mr. Williams's descriptions are sufficiently vague, and neither is bold enough to tell us that *A. eburnea* and *A. virginalis* are really and simply reflections—albeit beautiful ones—of our old friend *Anguloa uniflora*! What a hecatomb of pseudo-specific names the Orchidologists of the future will make! *A. virens* is another ghost—indeed a name only, a greenish white, or as Bateman puts it, a "dirty cream" coloured sort. *A. uniflora* may in some badly-named collection have the name tacked to it, but the whole usage of applying specific Latin titles to mere varieties of species, as in the case in point, is becoming a decided nuisance injurious to the generous enthusiasm of Orchid-growing amateurs, and thus ultimately baneful to the prestige of trade growers themselves.—F. W. B.

—I am much obliged to Mr. Douglas for his descriptions of *Anguloa uniflora* and the variety *superba*. With this species, however, I am well acquainted, having known and grown it for upwards of twenty-five years; the variety has sometimes deserved the name of *biflora*, as twice I have had it with two flowers on the same scape. What I desire to know is this, if the plant known as *A. eburnea* is synonymous with *A. uniflora*. If not, what it is like; and, seeing the plant in question named by Mr. Baines, I thought that he knew it; it appears, however, that he does not, but opens another question by saying that the plants he has known by the name of *A. eburnea* do not differ from *A. virens*, a species which, judging by its name, should have green flowers, which I have neither seen nor ever heard of; what can it be?—Z.

Phalænopsids.—Mr. F. Goldring last week in referring to *Phalænopsis Lobbi* gives as a synonym *P. intermedia* Portei. I have always held these plants to be distinct. Will some one tell me if I am in error? *P. intermedia* (Lind.) is the same as *P. Lobbi* (Veitch), and appears to partake somewhat of the characters of *P. amabilis* and *P. rosea*, the petals being dotted and spotted at the base with crimson; whilst the plant known as *P. intermedia* Portei is entirely destitute of these spots, the lip also being differently marked. More recently another form of *P. intermedia* has been introduced, called *Brymeriana*; can any of your correspondents enlighten me as to its points of difference?—Z.

Indian Periwinkles from Seed.—We find these very useful for decorative purposes, in the form of small plants raised from seed sown in moderate heat in March, and if grown on in a medium temperature, they form bushy little specimens for summer or autumn decoration; after that they should be kept rather cool and dry, or should have just enough moisture to keep the foliage fresh until the days begin to lengthen, when they should be pruned back to the desired form, be placed in a moist growing temperature, and as soon as fairly started into growth they should be shaken out, and

reotted in rich soil. After that they will make rapid progress, and few plants form better shaped specimens than these Periwinkles or Vincas. By merely pinching out the growing points of shoots that are out-stripping each other, they may be grown into perfectly symmetrical proportions without any staking or tying, a practice that should be discouraged as far as possible in plant culture. The white kind with a red centre, generally called *V. elegantissima*, makes a striking object in groups of stove and greenhouse plants in summer. The principal enemy which these Vincas have is red spider, and that should be kept down by syringing, and above all by maintaining a vigorous growth by means of liberal applications of liquid manure, and maintaining plenty of atmospheric moisture in the structure in which they are grown.—J. Groom, *Linton*.

Ipomæa decora.—This is a new Convolvulaceous, herbaceous plant, introduced from Eastern Tropical Africa by Mr. J. M. Hildebrandt. It has a large tuberous root-stock, and annual, erect stems about a yard high, clothed with silky hairs. The leaves are broad and oval, with thick nerves, and the white flowers with a reddish centre are traversed by yellow bands in the folds, and they are about 4 in. in diameter. There is a coloured figure of this plant in the "Monatsschrift des Vereins zur Beförderung des Gartenbaues," where it is stated that it flowers in winter. It is allied to the climbing species *I. albiyenia* and *I. Geraldii*.—W. B. HEMSLEY.

New Seedling Heath.—At the Byfleet Horticultural Exhibition, Messrs. Jackson & Son, of Kingston, staged a specimen plant of a new unnamed hard-wooded Heath. It is the result of a cross between *Marnockiana* and one of the best of the early flowering kinds, and will certainly become, when better known, a great favourite for summer and early autumn decoration. The flowers are bright rose, and are produced in the greatest profusion, and the habit is all that can be desired. Those who are in the habit of growing for autumn exhibition would do well to look to this variety, as a well-grown specimen forms a very telling feature in a collection.—J. C.

***Cyclamen europæum* as a Pot Plant**.—This hardy species of *Cyclamen* is well worthy of the attention of plant lovers. The flowers are so delicately and deliciously fragrant as to render it a highly desirable plant for pot culture. It may now be seen in bloom on the rockery at Kew, where, however, owing to a restricted root run, but a faint idea can be formed of its capabilities. It enjoys when in the open ground a well-arranged sheltered situation; but where the roots can find an abundance of nourishment it is easily grown in pots, succeeding admirably plunged up to the rim in a cold frame during the winter, and placed in April in a shady situation. In August it commences to throw up its pretty bright flowers, the exceptionally sweet perfume of which renders it highly acceptable for window or conservatory decoration. If placed in a north aspect, it will last a long time in bloom.—C. B.

Neapolitan Violets.—Any one desirous of having a supply of these lovely flowers during the winter months should look well now to keeping their runners cut close off, or they will monopolise all the energies of the plants; if kept to single crowns like Strawberries success for forcing is certain.—J. Groom.

Perpetual Carnation La Belle.—The sweet, pure white flowers of this Carnation are invaluable for cutting, and a very easy, expeditious way of working up a stock is to put in the cuttings or pipings now under a handlight at the north side of a wall or fence of any kind, where it will be cool and shaded. If a large number are required a frame and lights will answer as well. Make a bed 6 in. in depth, of fine, light, rich soil in the frame, press it down moderately firm, scatter a little sand over the surface, water, and leave it for an hour or two to settle and drain. Dibble the cuttings in 2 in. apart; keep the soil in the frame in an equable state as to moisture, occasionally dewing the tops of the cuttings over with a fine-rosed pot during hot, dry weather, and every cutting will root, and be fit to pot up by the end of September. Pot into small pots singly, and place on a shelf near the glass in the greenhouse, and pinch back any strong shoots till they are potted into the blooming pots in spring, or as may be necessary. I like to place five plants in an 8 in. pot, or a larger number in a 12-in. pot, to make large specimens. They may also be grown singly in 6-in. pots, but they are not so effective. Most of the Tree or Perpetual Carnations may be planted out in summer and be lifted and potted in autumn. But I have always found this kind to do best when grown altogether under glass, and it will stand a high temperature if the plants have plenty of light. I think it best to strike a lot of young plants annually, selecting the strongest and healthiest cuttings available, as young plants produce the largest flowers.—E. H.

Lofty Tomatoes.—A resident in California is now gathering ripe Tomatoes from the top of a 20-ft. ladder. The Vine, which is 25 ft. high, has been trained on the sunny side of the house, and shows blossoms and fruit in every stage of growth.

AMERICAN NOTES.

THE JAMABUKI OR RHODOTYPUS KERRIOIDES.

(A JAPANESE SHRUB.)

JAPAN has greatly enriched our collections of hardy shrubs and herbaceous plants, and while a number of the shrubs from that country are well known and popular, we find that others, equally meritorious, are seldom seen in cultivation. If one takes up a catalogue, and finds "*Rhodotypus kerrioides*, a fine shrub from Japan, with the habit of *Kerria*, but with large white flowers," as there is nothing in the announcement to attract the attention of those who do not know *Kerria*, one in making his selection passes this by, and the nurseryman concludes that there is no demand for good things. It is a fact, and we may as well accept it, that people in general do not take to botanical names. However unreasonable this may be, and however we may show that some botanical names, such as *Magnolia*, *Geranium*, and others, are in common use, the fact remains that if we would popularise a plant, we must give it—unless its botanical name happens to be one like *Coleus*, which every one can remember—a name that will take. For this reason, in calling attention to a useful and showy Japanese shrub, *Rhodotypus*, we have been at some pains to hunt up its native name, and give our readers the choice between the botanical *Rhodotypus*, meaning "Rose form," and the native Japanese name *Jamabuki*. There is but one species of *Rhodotypus* thus far known, and it has been named *kerrioides*, from the marked resemblance of the foliage of the shrub to that of *Kerria japonica*, the old "Japan Globe Flower" of our gardens, which makes itself almost a weed, and which is still known in some catalogues by the incorrect name of *Corchorus*. The "*Jamabuki*," or *Rhodotypus*, is a perfectly hardy shrub, flowering in April, its foliage being so much like that of *Kerria* as to warrant its name; but the flowers, instead of the deep yellow of *Kerria*, and their flimsy texture, are of the purest white, and much larger and firmer. The plant belongs to the Rose family, and, unlike most of the showy members of that, it has but four petals, the usual number being five. The fruit consists of (usually) four little stone fruits, like the grains of a Blackberry, and according to Siebold and Zuccarini, who first described it, becomes of a brilliant black colour, and remains so until the middle of winter. We have had the plant in cultivation for several years, and find it one of those easy-growing things that have every element of popularity. It is not particular about soils, does not get so rampant as to need much checking, and forms a shapely bush, which in early spring shows an abundance of pure white flowers, which last a reasonable time. It is equally deserving of a place in the shrubbery with the *Weigelas*, which are now deservedly popular.

"Shut your own Gate behind you!"—When you leave your garden, fruit patch, or grounds, of whatever kind, *shut the gate*, and leave whatever is behind it, there—don't take it with you. Recollect that when you visit the place of another, you go to see what he has to show, and learn what he has to teach. If you would be a welcome visitor, and be dismissed with a pressing invitation to come again, place yourself in a receptive mood; be for the time the attentive pupil and not the teacher. When others visit your place, will be the proper time to teach. Of all the intolerable bores who visit us is the man who brings his own place with him, and who, whatever may be shown him, at once institutes a comparison with his own, and begins to tell that "mine are much better than that,"—"I can beat you on so and so," and ignoring the thing before him tells us, "Ah, you should see my Strawberries," "my Roses," "my Tomatoes," and so on all through—in short, the man who does not "shut his own gate behind him." Those who are so thoroughly satisfied with their own that they cannot forget it for a few hours, should not visit, but remain upon the scene of their remarkable achievements—at home. We would not imply that one in visiting the grounds of another, may not, on occasion, drop a useful hint drawn from his own experience, or that he may not give his host any information that he may ask for. But we have been so annoyed at receiving visitors, and worse still, in visiting strange grounds in company with those whose only object in visiting appears to be to boast of their own affairs, that we feel called upon to protest against it. Those who thoughtlessly fall into this unpleasant error, need only to be reminded of it, and they will sensibly avoid it. From the chronic boaster of his own achievements, we hope to be delivered.

The Oleander Poisonous.—The different varieties of the Oleander (*Nerium Oleander*), so popular as house plants in cool climates, are in warm countries often cultivated as ornamental trees, and used as hedge plants. The tree, in a suitable climate, will reach the height of 20 ft. to 30 ft., and forms a most beautiful object, both in its leaves and flowers. But with all its attractiveness, it has the

misfortune to be highly poisonous, a quality not so likely to be manifested when grown as a house plant, but one which becomes of serious importance when it is in common cultivation in the open ground. Some months ago, one of our correspondents in Bermuda, where Oleander hedges are very common, wrote to ask if the tree could poison the herbage around it, as he had found that animals that grazed near the Oleander hedge were frequently made seriously ill—a trouble which might be readily caused by a few fallen leaves. Later accounts come from another British colony, New South Wales, of the death of six cows at Sydney; the animals were fed upon grass recently cut from a lawn on which the Oleander grew, and its leaves became mingled with the fodder. It is quite likely that the poisonous principle is more active in climates which will allow the plant to grow continuously in the open air; still, while we do not remember to have heard of any casualty from house plants, it is well to know of the danger and be on guard against it. St. Louis, Mo., may also be called the City of Oleanders; such is their abundance, that it would seem that every house has one or more bushes, and the markets are gay with them. We should expect accidents there, if anywhere, from the plant. A case is recorded in Europe, in which fatal results followed eating meat in which a skewer of Oleander wood had been used.—*American Agriculturist*.

Hanging Baskets.—Allow me to tell your readers how to make hanging baskets at a slight expense, at least for less than the actual cost of such articles bought in stores, and, to my mind, they are then no prettier than those made at home. Procure a wooden bowl, a stray rusted tin basin or wash dish, which is the best shape for the present purpose; cover the outside with a coat of putty, and place on it, in rows, groups, or clusters, little shells. A row of tiny "dust-pan" shapes are pretty for a border. The contrast of the green leaves drooping over the white shells is very pretty. Or, if shells are not to be had, a "pounded" mixture of bits of different coloured glass pressed into the putty makes the uninitiated believe your basket to be made of diamonds, especially when the sun is shining on it. The "Snowflake" baskets, made of ravelled white cloth, look cool and hint of spicy woods and nodding Violets through the long winter, if filled with Ferns and hung in some shady window. Gather the Ferns while green and fresh, and pile them on a platter, or even a board; cover them with thick, wet Moss, and they will keep moist and green during the winter, to replenish the baskets or vases. Try it.

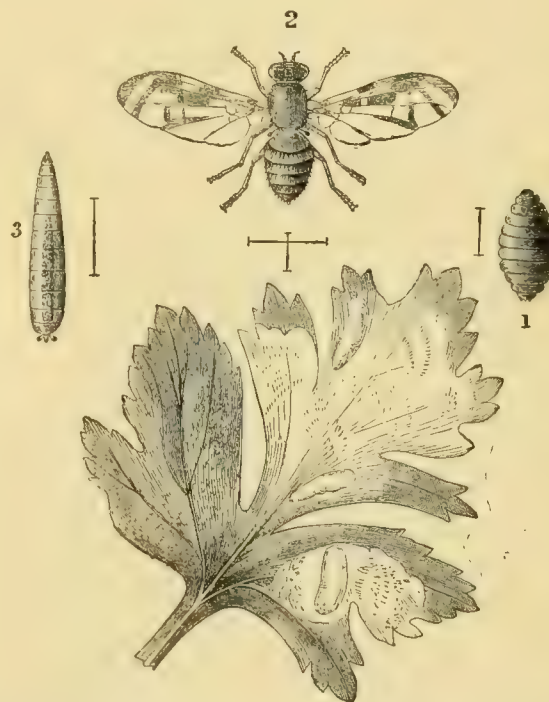
Magnolia parviflora.—A new *Magnolia* must necessarily be a valuable acquisition when we think of all the estimable qualities possessed by the various members of this family or genus. But what is *Magnolia parviflora*, to whose merits we wish to call attention? With little difficulty we might conceive it a nobler and better form of *Magnolia glauca*, one of our most charming native *Magnolias*. The flora of Japan, indeed, offers types very similar to our own, and in this case the similarity has been sufficient to induce Siebold and Zuccarini to call the plant in question a variety of *Magnolia glauca*, and Maximowicz speaks of it as resembling *glauca* more than anything else. But do not fancy that it bears a very close likeness to *M. glauca*, for the flower and foliage are all constructed on a larger and more effective scale. The leaves are often more than 1 ft. long, oval, of a bright green on the upper surface and whitish on the under, after the manner of *Magnolias* generally. Otherwise the form of the leaf is somewhat unique, bearing no special resemblance to that of any *Magnolia*. The flowers are borne but sparsely, and because they are found only here and there on the bush the name *parviflora* may have been given. Certainly the flower is not small, fully equalling that of *Magnolia tripetala*. The petals are arranged in a cup-shaped form, like those of *M. glauca*; are about 4 in. long and of a pure, solid, creamy-white colour, like those of *M. conspicua*. Inside, however, the appearance of *parviflora* is still more remarkable on account of the extraordinary development of the pistils and stamens. These parts of the flower are peculiar in most *Magnolias*, but in *M. parviflora* they attain an unusual size and brilliancy of hue. The pistils, in a solid cone, rise out of a bed of stamens six or seven rows deep. The base of these is a broad belt of crimson, and the anthers are of the same colour. In fact the whole general tone of both pistils and stamens is more or less brightly crimson. But the most remarkable qualities of *M. parviflora* are its delightful spicy odour and the peculiarity of blooming in mid June. So penetrating and agreeable is this odour that the first plant which bloomed in this country in April last, in the greenhouse of Messrs. Parsons & Sons, distinctly scented the entire building 100 ft. long. Its fragrance is much more penetrating than that of *M. hypoleuca*, and in many ways *Magnolia parviflora* differs greatly from *M. hypoleuca*. In short, the vigour of the growth of *parviflora*, the lateness of its period of blooming, and its delightful, penetrating, spicy odour must eventually secure it a high place among hardy plants.—*Rural New Yorker*.

GARDEN DESTROYERS.

THE CELERY FLY.

(TEPHRITIS ONOPORDINIS.)

LATE in the summer and in the autumn it may be often noticed that the leaves of Celery and Parsnips have a very withered and blighted appearance; on closer examination it will be found that the discoloured leaves are much blistered, and on holding one up against the light a grub or maggot nearly $\frac{1}{2}$ in. long will be seen between the skins of the leaf; this is the grub of the Celery fly, which lives on the softer portions of the inside of the leaf. This withered appearance of the leaves is generally attributed to some atmospheric effect, such as a cold wind, heavy rain, hot sun, or anything else remarkable in the weather, without taking any pains to discover the real cause; but by taking a little trouble in investigating things of this kind, the root of the evil will generally be discovered. This insect not only attacks the leaves of Celery, but also Parsnips, Alexanders, and several other large Umbelliferous plants, which suffer quite as much as the Celery from their attacks. When the grubs are present in large numbers, as is often the case, the plants are



A portion of a Celery leaf showing the blisters formed by grubs of the Celery fly. Fig. 1.—Chrysalis magnified. Fig. 2.—Perfect Insect magnified. Fig. 3.—Grub magnified.

The lines show the natural sizes.

very much injured by the loss of so much foliage, and become weak, sickly, and stunted. The grubs may be found from the middle of June to the end of November, and as there are two or more broods of this insect during the season, it is very desirable that the grubs of the first brood should be destroyed, so as to prevent, if possible, any future generations. This is rather troublesome, but it may be done very effectually by pinching that part of the leaf where the grub is between the finger and thumb, or cutting the infested leaves off and burning them. Mr. Rose, of Byfleet, has tried watering his plants with the following mixture, which proved most successful: Two boxes of Gishurst Compound, and 1 lb. of Pooley's Tobacco powder, dissolved in water, and added to 36 gallons of boiling water. This should be thoroughly mixed, and then allowed to stand for twenty-four hours; the affected plants should then be well saturated with it. This can be best accomplished by watering them thoroughly with a pot which has a very fine rose; this method effectually kills the grubs. Mr. Curtis suggests that a dressing of gas-lime, soot, wood ashes, or lime applied to the surface of the ground about the time when the grubs are likely to be quitting the leaves would probably kill them when they reached the ground. This insect's natural enemies are few; they are probably free from the

attacks of birds when in the grub state; but, even securely as they would seem to be hidden in the leaves, two small members of the Ichneumonidae find them out and deposit their eggs in their bodies, causing the destruction annually of great numbers of them. It is almost impossible to do anything effectually towards exterminating this insect in its other states; the eggs are very small, and being laid between the skins of the leaves it is almost impossible to detect them. The flies may be caught with a butter-fly net, but I doubt if the few that would be captured would make any perceptible reduction in their numbers. As the chrysalides are formed in the ground they are practically out of our reach. The Celery Fly belongs to the Natural Order Diptera, or two-winged flies, the Order which contains the gnats, house flies, daddy-long-legs, &c., and is classed in the same family as the house flies. It is a very beautiful little insect, with particularly brilliant green eyes. In itself it is most harmless and inoffensive. It may be found from the end of May till the end of July, hovering over flowers, or basking in the sun in warm situations on palings and leaves, particularly on Laurel leaves, with its wings slightly raised and partially open, which it quietly waves up and down as it runs about with a jerky, half-sideways action. The female is provided with a longish ovipositor, which she can protrude or withdraw at pleasure. With this organ she pierces the leaves and inserts the eggs singly. These soon hatch, and the grubs which are produced at once begin feeding on the juicy interior of the leaf, thus separating the two skins, and causing the blistered appearance; often two or more grubs are so near together that the blisters in the course of time join one another. The grubs do not keep eating their way straight ahead, as the mining caterpillars of some small moths do, forming a regular track or gallery, but they appear to eat all within their reach, and work sideways along the line of untouched leaf, which generally is somewhat in the form of a segment of a circle, and gradually eat their way onward, leaving behind rows of their droppings. When fully grown the grubs work themselves out of the leaves, and drop to the ground, when they at once bury themselves and become chrysalides; those which are formed late in the season remain unchanged until the following May, when the perfect insects, bursting their fetters, crawl to the surface. The fly is about 2-10ths of an inch long, and measures 4-10ths of an inch across the expanded wings. The general colour of the entire insect is a yellowish-brown, but sometimes the body is darker. The head is furnished with a pair of small antennæ, consisting of only three joints. The eyes are large and prominent, and of a deep shining green. The thorax is oval and shining, with a few stiff black hairs on either side. The body is egg-shaped, each joint being fringed with fine brown hair. The wings are large and much clouded with yellowish-brown markings, which vary much in size and intensity in different specimens. Immediately behind the wings, in the place where the second pair of wings would be in four-winged insects, is a pair of small organs, shaped like drum-sticks, called halteres or balancers, the use of which is uncertain, but they are generally supposed to be the representatives of the second pair of wings. The grubs, when fully grown, are about 4-10ths of an inch in length, and are long and narrow, being very pointed at the head and gradually widening towards the tail, which is bluntly rounded; they are roundish and plump, pale green in colour, very shining, and so transparent that their intestines, &c., are clearly visible down the middle of the back as a broadish dark line. The grub is entirely destitute of eyes or legs; its body is composed of eleven joints, which are not very readily distinguished; the mouth is armed with two hooks instead of jaws, with which it appears to scrape its food with a backward and forward motion; the last joint of the body is furnished with several tubercles. The chrysalides are about $\frac{1}{4}$ in. long, oval, and somewhat flattened, horny, and of a yellowish-brown colour; the joints are very distinctly marked. G. S. S.

Spikenard of the Ancients.—As a writer in your last number (p. 197) revives a confusion which formerly existed, but which seemed to have been conclusively settled, a short statement of the facts bearing upon the question what this perfume was, may be of interest. The plant named by Mr. Wintle, *Andropogon*, is figured in the article by Dr. Royle, in the "Encyclopedia of Biblical Literature," vol. 2, p. 709, and called *A. calamus aromaticus*. He considers it to be the Sweet Cane of Scripture (Kaneh Bosen) mentioned in Exod. xxx. 23, Cant. iv. 14, where it is referred to along with Spikenard and other fragrant herbs; also in Jer. vi. 20, and elsewhere. It was, with other spices, directed to be made into an oil of holy ointment, and still yields the fragrant Grass oil of Central India. The plant is a true Grass. The Spikenard of Scripture (*Nardos*) is mentioned under this name in three places—in the Song of Solomon, and also in St. John's and St. Mark's Gospels; and it is described by Dioscorides and other authors, both classical and Arab. By the latter it is described as like the tail of the ermine, and called

"Sunbul Hindes." From having many spikes to one root it came to be called *Nardostachys*, and from the word *stachys* being rendered by the word spike, it has been translated Spikenard. The plant named *Nardostachys Jatamansi* by De Candolle presents a striking resemblance to ermines' tails. It belongs to the Valerianaceæ, and is figured in the "Treasury of Botany." In Dioscorides and in Persian works on *Materia medica*, two other kinds of Nard are mentioned, the Celtic Nard, called Sunbul Roomi or Italian in the Persian works, and the Mountain Nard. The former is interesting, because to this day *Valeriana celtica*, which grows on the Styrian mountains, especially on the Judenburg, is exported largely to the East by way of Trieste, as a perfume. The local name is Speyk. In ancient times it was shipped from the great Roman port of Aquilegia, once a place of great importance, though now deserted by the sea. This seems to me to indicate that the Sunbul Roomi was most likely the plant still exported from Styria. The true Spikenard, however, was the *Nardostachys Jatamansi*.—E. HARVEY, 12, Riversdale Road, Aigburth, Liverpool.

ANSWERS TO CORRESPONDENTS.

Indoor Plants for Winter.—I have a small conservatory, 15 ft. by 8 ft., which is warmed with hot-water pipes, and kept at a temperature of from 35° to 40° and upwards during the winter. What plants should I get to keep up a succession of bloom throughout the winter months?—JUNIOR. [*Chrysanthemums* will be useful till Christmas, and these, with a few zonal *Pelargoniums* prepared for winter blooming, early sown Chinese *Primulas* and *Cinerarias*, with a few tree *Carnations* and pots of *Mignonette* will make such a house gay and sweet. The following may also be added or some of them:—*Camellias*, *Spiræa Lindleyana*, *Eupatorium odoratissimum*, *Salvia splendens*, *Abutilon Boule de Neige*, *Habrothamnus elegans*, *Coronilla glauca*; *C. g. variegata*, *Begonia insignis*, *Erica hymetialis*, *E. Wilmoreana*, *E. autumnalis*, *Epacris*, various kinds, *Cytisus racemosus*, *Chorozema varium nanum*, *Richardia æthiopica*, *Vallota purpurea*. On the back wall may be put *Luculia gratissima*, and on the roof *Lapageria rosea*, and *Tropeolums*, with a few Tea-scented *Roses*.—E. H.]

Cricket Grounds.—The soil of our cricket ground is too rich, which makes it play "slow," and it cuts up very much. What should we do with it this back end to make it firmer and play faster? The Grass is also full of broad-leaved Rib Grass; what is the best means of killing it?—RIPON. [Unturf the whole, remove 3 in. of the top soil, then cover the new surface with 2 in. of house ashes or burnt ballast; replace the 3 in. of soil over the ashes or ballast, and re-lay the turf. Taking up and re-laying the turf will improve the quality of it very much and destroy all the Rib Grass. A good dressing of road scrapings laid on dry and evenly, breaking it with a rake from time to time to prevent it from caking, will also improve the turf. M.]

Lilies for Forcing.—I think of substituting Lilies for the Hyacinths to be forced for the early spring, and I should feel greatly obliged if you would give me any information as to the best sorts to be forced. Dwarf kinds which would subsequently thrive out of doors would be preferred.—COATHAM. [The single crowns of Lily of the Valley, each having a flower-spike in it, are the best for very early forcing. They do well potted twelve or eighteen in a pot; a little dry Moss should be placed over the crowns and the pots, which should be set on the hot-water pipes somewhere from which the light is partially excluded. For later forcing clumps are the best. If Lilliums are meant they do not bear much forcing, and will not flower very early. The best sorts are *L. longifolium*, *L. eximium*, *L. speciosum*, and *L. speciosum album*.—J. O'B.]

Wireworms.—Last autumn I dug up some old Grass land for garden-ground and it is now swarming with wireworms which destroy the crops. Will any of your correspondents be good enough to advise me how to eradicate them, or will they disappear gradually as the turf becomes rotten?—E. J. [If the plot of land is not large the wireworms might be eradicated by sinking slices of Carrot at short distances apart just under the surface, examining them every morning and killing the worms. Salt, lime, and soot are all useful in making the situation distasteful to them. In farm culture wireworms have either been destroyed or banished by sowing a crop distasteful to them, such as Mustard. Frequently stirring the ground and allowing a brood of ducks to have the run of it will destroy many. The pressure of a heavy roller on the land when the cropping will permit of it will be useful; and, lastly, a season's fallow, with cleanly culture if the case is a bad one, will eradicate them.—E. H.]

Yew Hedges.—We have about our gardens a large number of Yew hedges which are about 4 ft. high and 2 ft. wide, cut flat on the top. The last year or two they have been dying at the bottom and getting very weak in places. Some of our friends tell us this is in consequence of the tops not being cut with a roof. Is that the case, or are there any other measures that could be taken to cure them?—W. [Hedges cut in the way mentioned often die off at the base from want of light and moisture. The best shape for such hedges is that of an inverted V, A thus; and the best thing you can do is to have your Yew hedges cut into that shape next spring, just before growth begins. If thick shoots have to be severed you need have no fear of their throwing out plenty of young shoots to make a well-furnished hedge again.—E. H.]

Carnations and Picotees.—W. S. C.—The blooms sent are all good border flowers; four of them are well worth perpetuating; 4 is very striking, the bright rosy-crimson flakes on a brownish ground colour are quite novel; 6 is of the same type, but the few crimson bars which it possesses are not so striking as the flakes on the other; 5 is a beautiful rosy-crimson self; 2 is a yellow ground Picotee, with rosy-red edge. All of them are somewhat deficient as regards symmetry, and the edges of the petals are serrated, not smooth as they ought to be. The white ground Picotee and self Carnation are not worth propagating.

Names of Plants.—O—1, *Liatris spicata*; 2, *Sedum reflexum*; 3, *Spiræa sorbifolia*; 4, *Sedum dasyphyllum*. J. M.—*Centaurea Jacea*, R.—*Liatris spicata*. J. T. F.—*Clarkia pulchella* (red and white-flowered varieties). H. W.—1, *Dentzia scabra* fl.-pl.; 2, *Campanula persicifolia* fl.-pl.; 3, *Jasminum officinale*; 4, *Lonicera Periclymenum*; 5, *Fuchsia virgata*. W. C.—*Lycium barbarum*. M. T. F.—1, *Lythrum Salicaria*; 2, *Liatris spicata*; 3, *Lobelia cardinalis*; 4, Cut-leaved Bramble (*Rubus fruticosus* var. *lacinatus*). Dorset.—*Passiflora racemosa*, A. B.—1, *Adiantum amabile*; 2, *Asplenium flaccidum*; 3, apparently a frond of *Dicksonia antarctica*. J. B. R.—*Pyrus Sorbus*. J. H. E.—1, Next week; 2, *Doodia dives*; 3, *Nephrodium molle*. *Oswegat*—*Santolina incana*. S. M.—1, *Polygonum cuspidatum*; 2, *Adiantum Capillus-Veneris*; 3, *Impatiens glandulifera*. Devon.—1, *Polypodium Phegopteris*; 2, *Asplenium Trichomanes*; 3, *A. mouantheum* 4, *Athyrium Filix-femina*, var:

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NOTES OF THE WEEK.

Lælia Sedeni.—A unique example of this lovely Orchid is now finely in flower in Messrs. Veitch & Son's nursery at Chelsea. It is a hybrid raised by Mr. Seden, the result of a cross between the little known *Lælia devoniensis* and *Cattleya superba*. It partakes somewhat of the character of the latter parent in habit of growth, but the flowers are rather larger than those of that species. In colour they are a rich deep lilac, the lower part of the lip, which is about 1 in. across, being beautifully crisped on the margin and of a brilliant deep purple hue, while the upper portion is pure white, shading off to rosy-lilac. The whole flower exhibits a richness of colour quite unsurpassed by any kind of Orchid, and when less rare it will undoubtedly be much prized in collections. In the same house the charming little *Phalænopsis Esmeralda* is bearing over a dozen flowers on each spike. They are about 1 in. across and of a pleasing rosy-purple hue.

Gentiana affinis.—This new species of Gentian is now in flower in Mr. Ware's nursery at Tottenham. In habit it is in the way of *G. septemfida*; it grows about 1 ft. high, and has leaves varying in form from narrow lance-shaped to ovate oblong. The flowers are numerous produced in a thyrsoid manner nearly the whole length of the stem, and are interspersed with the leaves. They are from 1 in. to 1½ in. in length, with the corolla lobes, which are rather short, spreading horizontally. Their colour is a bright deep blue, scarcely inferior to that of the lovely Bavarian Gentian (*G. bavarica*). It is apparently a vigorous grower, and is perfectly hardy. It is a native of California, where it is found at an elevation of about 5000 ft. on the north-eastern portions of the Sierra Nevada. It also inhabits the Rocky Mountains and British Columbia.

Arnebia echioides.—As a proof of the value of this handsome and very rare Boraginaceous plant as a hardy border flower, it is worth noting that the plant on the rockery at Kew has produced a continuous crop of flowers since the spring, and that at the present time it is even more attractive than earlier in the season. It succeeds admirably in the open border at Kew, and will doubtless be perfectly hardy even in an ordinary border. The singular tendency of the deep brown spots on the bright yellow to fade and become finally obliterated was alluded to in the letterpress that accompanied the engraving given of the plant at p. 409 of THE GARDEN.

Veronica longifolia subsessilis.—This is without doubt the finest of all the hardy herbaceous Speedwells in cultivation. From the well-known Long-leaved Speedwell (*V. longifolia*) and its numerous varieties it differs as regards its more robust habit and broader and shorter leaves, which are almost stalkless, hence its specific name. The flower-spike, too, is much larger, as are also the individual flowers, the colour of which is a brilliant deep amethystine blue, a colour which contrasts strikingly with the rich green foliage. It is a Japanese plant, introduced recently by Mr. Ware, of Tottenham, in whose nursery it is at the present time one of the most attractive objects in the whole collection of hardy plants. A poor representation of it as regards colour was given in the January number of the "Botanical Magazine" of the present year.

New Allium (*A. karataviense*).—The current number of the "Botanical Magazine" contains an illustration of this new hardy plant, which has been recently discovered in Central Asia, where it inhabits the Karatau and Alatau mountains. As a garden plant it will not be of great value, as the flowers much resemble those of the common *A. nigrum*, but it is apparently considerably dwarfer than that kind. Its chief attraction, however, is not alluded to in the description accompanying the plate, viz., the beautiful appearance of its broad leaves early in spring. They are at that time a rich deep green, which is overlaid with a glaucous hue, and a conspicuous margin, 16th-in. wide, of a bright brick-red tint.

New Zealand Flax in Bloom.—One of my plants of *Phormium tenax* is in bloom. Its leaves are 7 ft. long; stalk or scape 11 ft. high and 6½ in. in circumference. At thirteen of its joints are bunches of from twenty to thirty flowers. It is about seven years old. I fancy this is an unusual height, as I saw one at that favoured spot—Falmouth—a year or two ago not more than about half that height. It was in the aristocratic society of *Chamerops Fortunei* and *Dracena australis*, both of which were also in bloom. —J. M. CHARMOUTH, Dorset.

Trillium nivale.—This, though one of the smallest of all the Trilliums, is nevertheless well worth a place in a collection of plants. Apart from its size, it is an exact counterpart of its handsome congener *T. grandiflorum*, having pure white blossoms of similar form, and produced in much the same manner. For growing in peaty soil in the choicer and partially shaded parts of the rock garden, or in similar situations in company with other Alpines, it is a welcome addition. It inhabits woods in the North-western States of North America. It is well represented in the present number of the "Botanical Magazine."

Moggridge's Fritillary (*Fritillaria Moggridgei*).—Lovers of hardy bulbous plants will be pleased to learn that this beautiful Fritillary has been successfully introduced in quantity by Messrs. Backhouse, of York, who are now distributing it. Mr. Baker, in his monograph of the Order, ranks it as a variety of *F. delphinensis*, from which it differs in having a dwarfer habit, broader foliage, and yellow flowers. It is a native of the Maritime Alps, where, during the flowering season, it is said to give the slopes on which it grows the appearance of a sheet of gold. It is one of the numerous discoveries of the late Mr. Moggridge, in whose work ("Contributions to the Flora of Mentone") it is well figured.

Digraphis arundinacea variegata—**Humea elegans.**—A circular bed of these plants on the lawn at Pendell Court is now the admiration of every one who sees it. If not a novel arrangement it is by no means a common one, and is certainly deserving of imitation. The Grass forms a belt about 2 ft. high round the group of *Humea*, the plants of which have reached from 6 ft. to 7 ft. in height. The elegant, reddish-brown, feathery inflorescence of the latter contrasts finely with the silvery variegation of the Grass, and forms a most effective mass, which is moreover of a permanent character from spring till autumn. The *Humeas* require to be grown the previous year, and treated liberally, in order to form large plants by the following spring. The Grass being a hardy perennial does not require removal in autumn.

Cyananthus incanus.—The seed of this plant, introduced by me some two years ago, produced two varieties, one of which was superior in size of flower and intensity of colour to the other; the last form has been blooming freely recently in Mr. Riches' nursery at Tooting. I think the plant is still scarce and very little known, but when once seen it must become a favourite wherever Alpine plants are grown, its pendent habit and lovely porcelain blue flowers being so thoroughly distinct and beautiful. —W. H. GOWER.

A Pigmy Spiræa (*S. cæspitosa*).—One of the smallest, if not the smallest, of *Spiræas* is this singular Alpine species, which we observed on the rockery in Mr. Joad's garden at Wimbledon. The leaves, which are from ½ in. to 1 in. long, narrowly spoon-shaped, and silky and glaucous on both surfaces, are arranged in dense rosette-like tufts springing from a woody root-stock; they are numerous produced, and form a spreading carpet-like tuft, similar to the Stemless Catchfly (*Silene acaulis*). The flowers are from 1 in. to 3 in. high, terminated by a dense cone-like spike of flowers, which are very small and white. It is a native of the mountains of North America, from New Mexico to Northern Nevada, where it is found growing on rocks, &c.

Argemone hispida.—This handsome new Papaveraceous plant may now be seen in the Kew collection. In general appearance it much resembles the Mexican Poppy (*A. mexicana*), but the flowers are pure white and have a pretty appearance when fully expanded, as they measure from 3 in. to 4 in. across. It is a native of Colorado, from whence it was introduced to Kew about two years ago.

French Gladioli.—We have received from Messrs. Vilmorin, Andrieux, & Co., of Paris, some magnificent varieties of this gorgeous autumn flower. Amongst new varieties are Baroness Burdett Coutts, a kind with spikes 18 in. long, and bearing unusually large flowers of a rosy-lilac hue, heavily mottled with streaks of a darker shade; Flamingo, with flowers not so large as the last, but of a most brilliant scarlet, with dashes of deep purple on the lower divisions; and Mlle. Marie Nies, a variety which produces dense spikes furnished with flowers of unusual size, fine in form, and in colour rich deep rose, with a white stripe down the centre of each division, the lower segments being almost entirely white. Amongst older kinds the bright scarlet sort called Le Vésuve is one of the best, and nothing can be prettier than another of the same colour, but striped and dashed with white, called Phébus. Of a darker hue are African, also striped and flaked with white, and Jupiter, of a blood-red tint, striped and flaked with maroon. Amongst salmon-coloured kinds the best are Titania, with large, bold flowers flaked with a whitish tint; Hesperide, a beautiful Carnation-striped variety; and Celimene, equally handsome, though not so conspicuously marked. Of crimson coloured kinds Horace Vernet and Lulli are both beautiful varieties; the last the lighter-coloured of the two. The best of the

Carnation-striped, bright rose kinds are Ambroise Verschaffelt, Conquête and Murillo, all more or less striped and flaked with white. L'unique Violet is a large-flowered, bright pink kind, shaded with violet. The nearest approach to white in the collection is Norma, the flowers of which are large, fine in form, and densely arranged on the spike. Another good light kind is Mlle. Desportes; and others of a darker shade, but equally handsome, are Schiller, Carnation, Rosita, Phénix, Eglantine, and Zampa, all varieties of the highest merit; last, but not least, is De Mirabel, a lovely carmine, tinted and flushed with white. Altogether, this is one of the finest collections of Gladioli which we have seen this year, either as regards diversity of colour, size, both of flowers and spikes, or vigorous growth.

Omphalodes Luciliæ with Bright Green Leaves.—This is a distinct form and well worthy of a varietal name, though it differs in no way from the original except that the leaves assume a rich green tint lacking the characteristic glaucous hue. We saw plants of it in flower a few days since in Mr. Parker's nursery at Tooting.

Spreading Harebell (*Campanula patula*).—Two years ago I met with this pretty but scarce Harebell on the banks of the Wye, between Chepstow and Monmouth, and brought some seed home with me. This summer it has flowered beautifully, and I have not a prettier plant in my garden or greenhouse. Two or three plants in 6-in. pots have been the admiration of our friends and neighbours. I will send seed of it as soon as it is ripe to any correspondent who may wish for it.—H. BURNBY, *Wavendon Rectory, Woburn, Beds.*

Hypericum Coris.—This is evidently confused in some collections with *H. empetrifolium*, which, though somewhat like it, is quite a distinct plant. The true *H. Coris* has slender branches having a tendency to trail, and is furnished with small narrow foliage having a glaucous hue. *H. empetrifolium* is an erect-growing kind, with bright green leaves with no trace of any glaucous tint. Both bear clusters of small yellow flowers and bloom about the same time. They are now in flower in Mr. Parker's nursery at Tooting.

Hyacinthus candicans.—A plant of this 5 ft. in height, and bearing twelve fully expanded flowers, and above them a spike of plump fresh buds and bracts, may now be seen in the College Botanic Garden, Dublin. It is lovely, each flower being of tuberoselike whiteness, nearly equal in size and purity to the white *Lapageria*, and moreover delicately fragrant. If it ever be possible to obtain clumps of it what a glorious contrast it will make with *Tritoma Uvaria* and *Agapanthus umbellatus*! Those who have not this fine hardy species should immediately note it down as a superb plant.—B.

Alocasia scabriuscula.—In our note on this handsome new Aroid given at p. 216, it was inadvertently stated to be an *Anthurium*. We are also informed by Mr. Brown, of the Kew Herbarium, that it was one of the discoveries of Mr. Burbidge in north-west Borneo when on his recent expedition for Messrs. Veitch.

Single-flowered Dahlias.—Conspicuous amongst the rich collection of hardy plants in Mr. Joad's garden at Wimbledon, are some fine examples of the original species of Dahlias which have recently become popular. They certainly rank amongst the brightest of outdoor flowers at this season, and are scarcely less showy than the florists' Dahlias, which have now become almost perfect as regards size and form. The species which the single-flowered kinds apparently represent are *D. coccinea*, *D. Cervantesi* (the former with bright red, the latter with orange-scarlet blossoms), and *D. variabilis*, the flowers of which vary from the rich hue of the variety Paragon to bright yellow and pure white. All the flowers of these have large yellow centres, which form a striking contrast to the bright hues of the ray florets. The neat little *D. glabrata*, with its pretty mauve tinted blossoms, should also be included, for though the flowers are rather small they are borne in such profusion as to fully compensate for this defect.

Hardy Autumn Flowers at Tooting.—One of the most effective displays of hardy plants now to be seen in flower in the neighbourhood of London is in Mr. Parker's nursery, which is, in fact, the only place in which we have seen hardy flowers arranged in quantity with regard to effect. The late summer flowering kinds are now at their best, and, notwithstanding the exceptionally unfavourable season which we have had, they seem to have thriven admirably. The plants are disposed in lines which run at right angles to the shrubbery skirting the road, and the colours are arranged so as to harmonise with each other. The most noteworthy bed consists of a central row of the Flame Flower (*Kniphofia Uvaria*), on either side of which is a belt of *Echinops ruthenicus*, with globular heads of flowers of a bright amethyst tint. This bed has an edging of Ribbon Grass (*Digraphis arundinacea variegata*), and forms a most attractive feature. Another bed is composed of the bright yellow

Rudbeckia Newmanni, with broad belts on each side of the beautiful white *Hydrangea paniculata grandiflora* intermixed with a blue Aconite. *Harpalum rigidum*, edged with *Yucca flaccida* and *Aster Amellus*, forms another attractive bed, and near it is a mixture of scarlet Gladioli and light blue Larkspurs, which form a beautiful contrast. Golden and variegated leaved shrubs used for similar purposes answer capitally. Only the finest of hardy flowers are used for the purpose, and the arrangement admirably exemplifies the effect which can be produced by such material alone, whilst it affords a striking contrast to the meagre appearance of ordinary tender bedding plants in such unfavourable seasons as the present. It is a matter of surprise that bedding with the finest hardy flowers is not more generally practised, for no class of tender plants can produce the same variety of colour and brilliancy as may be found amongst hardy perennials.

Lilies and Disa grandiflora at Glasnevin.—For the last few days we have been having a very severe storm, which is doing great harm to vegetation and injuring the crops. Our Lilies have suffered much this year, many only just setting their buds and then rotting away. *L. chalcedonicum*, *L. carolinianum*, *L. Browni*, and *L. puberulum* have especially suffered, while *L. candidum*, *L. giganteum*, and all the section with strong large leaves have done very well. *Disa grandiflora* was never better. We have at least fifty pots of it at present in flower, and, though past their best, they are still very beautiful. From five to nine blooms on the largest spikes is a sight not often seen, the individual blooms being large in proportion to the number, and very highly coloured.—F. W. MOORE.

The Fringed Pennisetum (*P. fimbriatum*).—This is one of the most elegant Grasses with which we are acquainted. It grows from 1 ft. to 1½ ft. high; the flower-spikes being borne on slender stems. The spikes are from 4 in. to 6 in. long, and have a singularly twisted appearance. The spikelets comprise from two to four flowers, furnished with long hair-like awns, and the whole of the spikelets are enveloped in a feathery down of a purplish colour, which is of a deeper hue when young. We saw it a few days ago in Mr. Stevens's garden, at Byfleet, mixed with other hardy border flowers. It is admirably adapted for cutting purposes, as it lasts such a long time in perfection. Unlike most of the ornamental Grasses, it is of perennial duration and perfectly hardy.

Himalayan Cyrtandrææ.—The first of these interesting plants, distributed from Kew last year, which we have seen in flower is in Mr. Joad's garden at Wimbledon. This plant much resembles some of the species of *Chirita*. The plants, of course, are not yet fully developed, being only about 6 in. high, with ovate pointed leaves, which are bright green mottled with a darker shade, and covered with short dense hairs on both surfaces. The flowers are produced from the axils of the leaves on stalks a few inches long, and are the shape of a *Gloxinia*, about 1½ in. long; inside they are of a delicate mauve, with two conspicuous yellow stripes in the throat; outside the tube is of a much lighter hue. It is altogether a pretty plant, the value of which in a decorative point of view will be considerably enhanced if it will withstand such a low temperature in this climate as it is thought it should do, seeing that it inhabits such high elevations on the Himalayas, where oftentimes severe cold prevails.

Hæmanthus carneus is the name of a neat little species now in Mr. Elwes' collection. Though an old introduction, it is worthy of a place in every garden on account of its pleasing colour, which is a rose-lilac.

Salvia farinacea.—In Mr. Joad's garden at Wimbledon are houses devoted entirely to such half-hardy subjects as this, planted out in borders, and under such conditions they attain almost native luxuriance. Amongst his collection of the handsome half-hardy *Salvias*, *S. farinacea*, the beautiful Mexican species figured in THE GARDEN (p. 430, Vol. IX.) is now a very attractive object, as it is bearing abundantly, its long spikes of lavender and white flowers being very pretty. *S. cacaliæfolia*, with its beautiful sky-blue flowers similar to *S. patens*, is also a showy and desirable sort, as well as the crimson-flowered *S. porphyranthera*, both tender kinds which make capital greenhouse plants.

Imported Phalænopsids.—A fine importation of the lovely Moth Orchids (*Phalænopsis amabilis* and *P. Schilleriana*), consisting of nearly 2000 plants, has recently been received by Messrs. Veitch & Sons, Chelsea, in excellent condition, scarcely a leaf being in any way injured. This circumstance affords a vivid illustration of the improved mode of transmitting choice exotics from the Tropics compared with what collectors and introducers had to contend with years ago. It is interesting to observe in this consignment the unusually long and narrow leaves which the plants develop in their native habitat compared with what they produce under artificial culture.

THE FLOWER GARDEN.

PLANTS IN FLOWER AT READING.

Stocks.—In a season like the present, when most kinds of summer-bedding plants are failures as regards the production of masses of colour, it was a positive surprise to see at Messrs. Sutton's the other day richly-coloured beds of Stocks finely in bloom. They comprised the old-fashioned Ten-week, the Giant Ten-week, the Pyramidal, and other sections, all of which are well described as annual or summer Stocks. For the production of masses of colour, for pot culture, or for ordinary border decoration, the chief place must be given to the neat, compact, yet massive Pyramidal kinds. In colour there is enough of variety amongst these to satisfy every one, and some colours, such as the bronze, brick-red, and similar hues may be dispensed with. Of these pyramidal kinds there are the glossy green, wall-leaved, and woolly rough-leaved sections, but as regards habit and general usefulness there is little difference among them. The most pleasing colours are pure white, creamy white tending to yellow, white suffused with peach, pink-white, puce, cherry-red, carmine-red, brilliant scarlet, purple, violet-purple, and crimson; to these it is possible to add several others just as taste may dictate; but the colours specially mentioned are sufficient to indicate the various rich tints that can be employed to produce effective masses. The Pyramidal Stock grows to a height of about 10 in., has a centre spike around which the side shoots or spikes are grouped in regular form, and is throughout remarkable not only for evenness of habit but also for the production of about 80 per cent. of double flowers. If beds of these beautiful Stocks in distinct colours were but submitted to the inspection of the frequenters of our public parks and gardens in summer instead of the repetition of scarlet, white, and blue bedding plants so common, how greatly would they be appreciated by lovers of really beautiful flowers. These Stocks are liberally treated at Reading, but they do not need richer soil than is provided for ordinary bedding plants.

Phlox Drummondii.—Other charming plants were the dwarf forms of Phlox Drummondii—forms producing singularly neat, compact, dense bunches of flowers and foliage, and offering all that can be desired as dwarf plants for the production of masses of colour. The name given to a dark rich red kind, Phlox Drummondii nana compacta coccinea, is simply discouraging; but these designations are chiefly manufactured on the Continent, and bother seedsmen as much as they do the public. This is, however, a most beautiful variety, the colour of which is rich and striking, and the habit of the plant dense and perfect. Others are Fireball, crimson-red; rubra, deep rosy-red; and cardinalis Heynholdii, fashionable cardinal-red; a singularly pleasing hue is seen in a sort called the Rose Chamois, the colour of which is a charming salmon-rose, with a deep carmine red centre; this is a very dwarf and free kind. All these plants have been raised under glass, pricked off into small pots, and after exposure in cold frames, turned out into the open ground. Close by are also in great variety all the forms of the tall, large-flowered section of P. Drummondii, but these want a good deal of pegging down, and sadly lack habit and effect as compared with the dwarf forms.

Petunias.—These, raised from seed, of all forms and colours are just now very beautiful in the open ground, although, being subject to frequent rains, they show too much tendency to growth. The shapes of the flowers, their colours, and markings are very varied and fraught with the greatest interest; they produce grand masses of colour and make some of the most effective of bedding plants.

Lilium longiflorum.—This pure white large-flowered Lily, grown in great masses, is just now magnificent. The bulbs are planted thickly in rows, and every one is producing flowers with remarkable evenness at a height of about 20 in. No white flower could excel this for distinctness and beauty, and as garden features these beds are for the time unrivalled. The season has suited these Lilies exactly, and the masses thus seen indicate in what way this Lily might be employed to produce striking effects.

Gloxinias and Begonias.—Indoors, Gloxinias are beautiful, all the plants—and there are many hundreds—being the produce of Messrs. Sutton's own seed. Those of the present year's sowing, and, of course, saved from the last year's stock, show a marked advance in quality, and indicate how well the work of selection has been done. The fine rigid erect flowers predominate; they are very large and perfect in form and most varied in colour, with a tendency in many to show deep rich reds, blues, and maroon-purples that are none too common amongst Gloxinias. The plants raised from seed sown in January and February last, now blooming in 4½-in. pots, show what can be done in six months in the production of these beautiful flowers. This batch will bloom freely for the next two months if given now and then weak manure-water. The Begonias

are very fine, rich-coloured, and varied, and are a brilliant feature, just now rather past its best, but indicating a grand strain. These are but a few prominent matters in a place singularly full of interest at this time of the year. A. D.

THE BROAD-LEAVED BELLFLOWER

(CAMPANULA LATIFOLIA).

THIS, one of the handsomest of the Bellflowers, often attains in good soils a height of 6 ft., and fully a third of the stem is furnished with long bell-like flowers, which droop gracefully and are of a violet-purple tint. The Nettle-leaved Bellflower (*C. urticæfolia*), of which there are blue and white flowered varieties, and also a form with double flowers; *C. Trachelium*, a vigorous growing kind, with coarsely toothed leaves; the Milk-flowered kind (*C. lactiflora*), which forms a pyramid of blossom 4 ft. high; and the Pyramidal Bellflower (*C. pyramidalis*), are amongst the largest of the commoner kinds. The Long-flowered Bellflower (*C. nobilis*), too, grows quite a yard high in some gardens, and is one which should be grown in every collection, as it has large-sized blossoms, blue in the type and creamy-white in the variety alba. *C. Van Houttei* is another handsome kind, though but slightly different from the preceding. All the large-growing kinds will thrive anywhere in ordinary soil, and



The Broad-leaved Bellflower.

are capital subjects for planting on the margins of shrubberies, woods, and walks, and even in the wild garden, as they take care of themselves, and spring up annually from self-sown seeds.—W. G.

FLOWER GARDENING IN HYDE PARK.

THE fine weather which we have had during the past week or two has helped considerably to brighten up the bedding display in this park; but the wet and sunless season has, nevertheless, left indelible traces in the shape of lank weedy growth and paucity of blossom on the majority of the flowering plants, such as Pelargoniums, Calceolarias, and Lobelias. The advantages of carpet bedding over that of flowering plants for producing a bright effect in wet seasons are vividly exemplified here and elsewhere this year, for since the first week in which they were planted the carpet beds have been very effective, and seem to be quite independent of the weather, except that in some cases the more tender kinds have not grown sufficiently to make the pattern or design clearly defined. This style of bedding is carried out on an extensive scale in the line of beds adjoining Park Lane. A noteworthy feature regarding the carpet beds here is the variety of plants brought into requisition, many of which are not generally employed in the other parks. Amongst these are the pretty little *Achillea umbellata* with its hoary pectinate leaves, the Alpine *Hutchinsia* (*H. alpina*), a capital plant in exposed situations, and one which forms a deep green groundwork; various kinds of Saxifrages both of the crustaceous and other sections; numerous kinds of Stonecrop, and many other plants, all of which tend considerably to relieve the monotony of employing the same kinds over and over again in equally monotonous designs. A pair of circular beds opposite the Mount Street entrance are particularly attractive, both the

designs and the plants with which they are filled producing a pretty effect. A large bed of a similar shape on the lawn which skirts the Row is also extremely pretty, all the plants used for the groundwork having done well, as have also numerous plants of elegant habit which are dotted about with capital effect. The patterns of the other beds are, on the whole, equally neat and attractive, presenting as they do a well-kept and trim appearance. An objectionable feature, however—one wholly due to the unfavourable weather—is the half-grown and partially-rotted plants of Succulents dotted here and there in the beds, which are otherwise as flat as a carpet. Graceful plants in such positions would present an elegant appearance; but these (which by no means represent the true characters of the plants) produce quite an opposite effect. Another defect is the long line of beds beneath the shade of the trees which skirt the fence, a position in which even turf itself refuses to thrive as it should do. These are filled chiefly with Pelargoniums of various sorts edged with Lobelias. The flower beds in other parts of the park are much the same as regards arrangement as in former seasons; therefore comment on these is unnecessary. Novelties in the way of bedding plants are scarce apparently, for few are noticeable. This is, however, the less to be regretted as the abundant resources of such plants as are of well-tried merit leave but little room for new comers.

The sub-tropical bedding presents about the usual appearance, except that the annual fine-foliaged plants, such as Tobacco, the Castor Oil, Maize, Wigandia, &c., have not attained half their usual dimensions, a circumstance which has considerably marred the effect they would have otherwise produced. The sheltered enclosure at the head of the Serpentine known as the "Dell" is very tastefully planted with bold and handsome sub-tropical plants. The tall Cordylines rising above the dense undergrowth of shrubs have a picturesque appearance. Bananas, Tree Ferns, Aroids, and similar plants, are also effectively dotted about here and there; those on the lawn, however, appear to be grouped in too equi-distant a manner, and therefore do not look so well as they would have done if grouped with less precision as to distance.

The margins of the stream which flows through this beautiful glade present a very pretty effect, being fringed with Ivy, clumps of the Royal Fern (*Osmunda regalis*), *Elymus giganteus*, *Glyceria aquatica*, and other plants, which flourish in native vigour. There are many other plants, too, that could be introduced here with advantage, and which would afford greater variety. Amongst these may be mentioned the noble *Gunnera manicata* and *G. scabra*, *Arundo Donax* and its variegated-leaved form, *Saxifraga peltata*, which attains grand dimensions in a moist situation; *Thalia dealbata*, a semi-hardy, Canna-like plant; *Senecio japonica* (*Erythrochæte palmatifida*), *Richardias*, *Sagittarias*, *Typhas*, and others equally beautiful. Two large circular beds on the lawn adjoining the Row planted with the Coral Plant (*Erythrina Crista-galli*) are now the admiration of every one, as every branch forms a perfect wreath of blood-red blossoms. The legible labelling of all the plants in the beds in this park is a very commendable feature, and one that should be imitated in the other public parks, as it not only enhances the interest of the collection, but also aids those who wish to take the names of desirable kinds which they may wish to introduce into their own gardens.

W. G.

AURICULA GOSSIP.

I HAVE much pleasure in replying to Mr. Horner's enquiry (p. 213). Our Auriculas were repotted the second week in June. We have about 250 plants, in all eighty-three sorts, without reckoning Alpines. Of these eleven have shown for bloom, viz., of green edges—one Booth's Freedom, two General Niel, two Ne Plus Ultra, and one Lady Richardson; of white edges—one Wood's Delight, one Countess of Wilton, and two Maggie Lauder; and of selfs only one Lord of Lorne. Of these, three did not flower in the spring. Unfortunately our best plant of Freedom is amongst the above, but it has so strong a crown that I feel sure it will flower again in the spring; and for the rest I care very little; indeed, I believe its not flowering is in the blood (or sap), as both General Niel and Ne Plus Ultra served us the same last year. Of the more valuable sorts I have eight George Lightbodies, six Lancashire Heroes, and three Smiling Beauties, all looking comfortably fat and well for the winter. I judge therefore that my little flock are all right with their late potting; and that although the percentage is higher than Mr. Horner's, it is more influenced by a preponderance of erratic sorts than by ordinary circumstances.

On reading the melancholy record of the results of Mr. Douglas's experience with his early potting I exclaimed: "We told him so. What will Mr. Horner say now!" And Mr. Horner says now, that he is still in favour of early potting. And when he and Mr. Douglas say so—our two greatest growers and authorities—small men must be quiet. Nevertheless, I find our Lancashire florists against them. Mr. Barlow had not repotted a plant of his when I visited Stakehill

early in July, and I know many other florists who pot their Auriculas much later than Mr. Douglas advises. I feel convinced that it is best to let the plants grow on awhile after flowering, leaving them to complete their maturing; and then, when they are at rest, repot them and let them rest on for the winter. It appears to me that early potting encourages a double growth every year. It is possible enough, with care and loving patience, for an enthusiast like Mr. Horner to watch and nurse them so carefully that, in his northern regions, they will sleep on and behave themselves discreetly; but in the warmer climate of Loxford Hall it is clearly beyond the power of Mr. Douglas to keep them back, and they flower afresh in spite of him. Small growers like myself have not the plants to spare for extra risk, and there is safety in the medium course, so I say now, pot early in June, and not earlier.

Mr. Horner stated (vol. xv., p. 402) that his usual average of autumn bloom was from two to five per cent. I should suppose therefore that the cold and wet summer would account for his present very low average of one per cent. I may add that my Auriculas have not been placed under a north wall this year, but kept in frames in an open situation. Any little sunshine there has been has done them good. Indeed, I do not believe in the north wall theory, except in very hot summers, and it is possible that the great mortality which has been noted this year in Auriculas may have its root in this overshadowing them in damp dull weather.

BROCKHURST.

REMINISCENCES OF THE PRIMROSE.

THE double yellow Primrose was probably as plentiful fifty years ago as it is now. I remember forming lines of it by the sides of paths in cottagers' gardens as far back as 1823 in the same way as double Daisies were subsequently used, but strange to say it has ceased to be met with so abundantly as at that time. For some years it was the most extensively cultivated of the family, unless we include the Polyanthus, which was perhaps as plentiful and in some cases as good as at the present day, and most certainly Auriculas were more healthy at that time than now; but the Primrose which the enterprising young gardener sought after at that time was that imperfectly-known British species *Primula farinosa*, and the localities in which this singular member of the family was to be met with occasioned many a long journey. It was not to be met with everywhere, and I do not remember even seeing it in a cultivated form; but as years passed on other members of the *Primula* family were brought into notice, the Chinese species attracting much attention, while I think double forms of the hardy mauve and white were in cultivation before the single ones of the same colour, and a great advance was made in *P. cortusoides*, which was introduced about 1840, when other forms of the hardy Primrose were becoming more common, and I may here remark that there have from very early times been two, if not more, varieties each of the double yellow, mauve, and white, one of them being more robust than the others. I mention this here as I never saw a claim to one of the strong-growing ones having a recent origin. Years rolled on, and new varieties made their appearance; but for many years I lost sight entirely of the old double yellow, and about 1865 I visited an out-of-the-way village in a far-off county, where I had seen it so plentiful about forty years before, and found it had almost, if not entirely, disappeared there; certainly it was summer time when I was there, so I could not obtain a single plant. Subsequently, however, I obtained a tolerably good variety of that colour from a friend who had picked it up in a wood where it was discovered by one of the men employed in the Ordnance Survey, and doubtless the original one had been obtained promiscuously in the same way. I regret the advent of the Japan species has not resulted in some useful hybrids; but it is not too late to hope for some yet, for assuredly something good must follow this accession to the family. But there seems a certain amount of waywardness in the family, and what little I have done in the way of raising new garden varieties has been generally done by letting the kinds I desire to save seed from hybridise themselves by planting them together, and in a position where they might seed and sow themselves. I may further add that I have in my time endeavoured to disseminate the garden varieties amongst our wild ones in woods and wastes, and have sown Polyanthus seed, &c., in quantity where I expect in some one's time it will make a mark.

AN OLD GARDENER.

Gunnera scabra.—This is sometimes said to require a well-drained, warm soil and abundant waterings while growing; here it is planted quite close to the water. Its roots are below it, and thus situated it has withstood the winter, with the protection of a small heap of leaves over its crown, and it is now in the most vigorous condition possible and very effective.—T. SMITH, *Newry*.

THE SPIKENARD OF THE ANCIENTS.

ENOUGH has been written about this plant to fill a good-sized book. All the research and knowledge of some of our most eminent botanists have been employed to set this matter right, and I think if we consider the bulk of the evidence, we must feel satisfied that *Nardostachys Jatamansi* is the true Spikenard of Scripture, and not *Nardus indica* as stated by Mr. Wintle (p. 197). A special study of this plant was made by Sir William Jones, President of the Royal Asiatic Society, who discovered that the veritable Spikenard of Scripture was a species of Valerian, called by the Hindoos *Jatamansi*, signifying a "lock of hair," and he named it *Valeriana Jatamansi*, now recognised by modern botanists as *Nardostachys Jatamansi*. Any one wishing for further particulars respecting the history of this plant cannot do better than read Sir William Jones's papers in "Asiatic Researches," also those of Dr. Roxburgh and Dr. Royle, both of whom contributed to the same work. After reading these papers I think every one must come to the conclusion that the *Nardus* of Ptolemy, the Indian Sumbul of the Persians and Arabs, the *Jatamansi* of the Hindoos, and the Spikenard of the shops in Calcutta, are one and the same plant. Dr. Patrick Russel was also convinced that the Indian Nard of the ancients and that sold in the shops in Calcutta are one and the same plant. The plant of which the annexed is



The Spikenard of the Ancients (*Nardostachys Jatamansi*).
Half natural size; colour of flowers purple.

an illustration was raised at Mr. Ware's, at Tottenham, early in the spring of 1878, from seed obtained from Northern India. The young plants thus raised were potted and stood out unprotected the whole of the winter; this spring they were planted out on the rockery in a partially shady position, in sandy loam, and they are now about 9 in. in height, and are still throwing up heads of bloom, the individual flowers in which are small, and of a purplish colour.

A. J. PERRY.

Fuchsias amongst Roses.—April frosts killed for us about ten standard Roses, and we considered it too late to put others in their places. Fortunately we had some good tall well-topped Fuchsias. After hardening them till the first week in June, we turned them out close to the Rose stocks, securing them thereto; thus they not only filled up what would have been ugly gaps, but have vied with the Rose as to quantity of bloom; and, best of all, their flowers have stood the winds and rain perhaps better than any other flowers in our garden. If all is well, we shall use Fuchsias more extensively next season.—JOHN WOOD, Woodcille, Kirkstall.

ABRONIA FRAGRANS.

THIS most beautiful Colorado plant should be known and cultivated by every lover of flowers. It blooms all summer, and is, I think, the most fragrant of all flowers. When in its neighbourhood one is often first made acquainted with its presence by its delicate perfume, which fills the surrounding air. It grows to the height of from 2 ft. to 3 ft.; sometimes upright, but often lying partially upon the ground, or leaning upon other plants or weeds. The branches die to the ground in winter, but the roots are perennial. Its favourite native haunts are rich gravelly banks of streams and ravines; and as we have but little rain during the summer months, it must send its roots down deep into the earth for the necessary moisture to sustain its foliage and flowers during dry seasons. It is called a night-blooming plant; in fact, its flowers only partially close during sunshine, and especially in hot dry weather. I have found them open at mid-day in the shade of trees, and after rain. The flowers that are partially closed by the heat open out an hour or two before sunset, and seem to redouble their fragrance owing to the day's rest. They last well in a cut state, and retain their fragrance for many days. So far as I know no efforts have been made to cultivate it, except that I have attempted, without success, to strike cuttings of it taken from the wild plants. It produces seed sparingly, and can probably be readily grown in that way, as I often see young seedlings in the fields.
Denver, Colorado. DANIEL WITTER.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Polygonum Sieboldi.—This makes a most excellent water-side plant; growing close to, and even in the water, its beautiful arching stems, now covered with feathery white flowers, are most attractive.—T. SMITH, *Newry*.

Mimulus in Water.—There is a large quantity of *Mimulus* with yellow flowers growing wild in a brook at Beddington corner (Mitcham Common). They grow in the water at the edge of the brook like the Forget-me-not, and evidently enjoy the situation. I was not aware before that *Mimulus* were aquatic plants.—C. G., *Addiscombe*. [*M. luteus* is naturalised in boggy places in many parts of Britain.]

Spiræa venusta.—This, planted in a half shady nook among stones, close to the water's edge, has grown over 6 ft. high this season. It has handsome foliage and bears noble heads of flowers, and is altogether superior to *S. palmata*.—T. SMITH, *Newry*.

Ornithogalum aureum.—This has flowered beautifully here this summer. The colour is a remarkably fine rich yellow and the plant lasts a long time in bloom, but its leaves are small and very few in number. I consider it to be a very desirable plant, and one which forms a conspicuous object when in flower.—HENRY BURNEY, *Warendon Rectory, Woburn, Beds.*

Bocconia japonica.—This is said to require a dry, warm soil, but we have a mass of it here in a bed about 3 ft. from the water's edge and only 4 in. above it. Thus situated it has survived the winter, and has grown in the most vigorous manner possible, and strikingly ornamental it is.—T. SMITH, *Newry*.

Aubrietias.—Beautiful as the Forget-me-nots are they have companions equally deserving a place in every garden in the Aubrietias. They are easily grown, very hardy, and last continuously in bloom for a long time. They are useful in mixed borders, on rockwork, and for edging spring beds in the flower garden. Some of the sorts are of free growth and most desirable no doubt, but *A. purpurea* is the kind which is most frequently met with. This, and its handsome companions *A. Campbelli*, *græca superba*, and last, but not least, *A. Hendersoni*, are all useful kinds and distinct; the last has blooms much longer than those of either of the others and much higher coloured. When looking through the gardens at Didlington Park, Brandon, Norfolk, two years ago last April, I was much pleased to see Aubrietias used as edgings to walks leading to a new maze that had then only recently been made. One side of the walk was edged with *A. purpurea*, the other with *A. græca superba*, and at the time of my visit they were in full bloom, and as the walk had trees on one side and Yews on the other the effect was most pleasing. This and many other spring blooming plants have a good effect when planted in patches here and there in borders about the ornamental grounds in a semi-wild state.—J. C. W. F.

Unseasonable Flowers.—The present season is remarkable for its production of unseasonable flowers. To-day I have three varieties of *Arabis* in bloom. *Polyanthuses* have sent up spikes from the newly-formed crowns. *Primula denticulata* is flowering a second time. Of *Auriculas* we gathered a handful a few days ago, and there are others to-day, and fine flowers too. I had two beds of double-yellow *Primroses* formed in June, and they are now well bloomed, and in a few days will have from three to six on a plant. Several *Androsaces* (*Chamejasme*, *carnea*, *lanuginosa*) have

just been in bloom a second time, and *A. lactea* is now in bloom. also see solitary flowers on *Gentiana acaulis*.—JOHN WOOD, *Woodville, Kirkstall*.

Michauxia campanuloides.—This has proved itself to be a distinct and highly ornamental plant. Here, in a very wet place close to the side of water, it has grown to the height of 6 ft. 8 in., with a clean stem of 3 ft., a point from which the pyramidal candelabra-like crown of white flowers starts. The latter are composed of from six to nine strap-shaped recurved petals about 2 in. long. Standing up above other plants this *Michauxia* is very striking.—T. SMITH, *Newry*.

Bocconia cordata.—This stately Japanese perennial has much to recommend it, though it is not nearly so extensively grown as its merits entitle it. Its large, Fig-like foliage, glaucous beneath, is quite unique amongst hardy plants, and the great vigour and beauty which it attains in deep, warm, sandy loam, in sunny positions, considerably increase its value as a decorative plant. In Mr. Stevens's garden at Byfleet there is a clump of it fully 10 ft. in diameter and nearly 8 ft. high, now finely in flower. Its blossoms, though by no means showy, have a very elegant, feathery appearance, and emit, moreover, a delicious fragrance. It is one of the easiest plants to propagate, either by means of seeds or division; indeed, it is difficult to eradicate it from borders when once it has become well established.—W. G.

Autumn Flowers.—I have a large bed of seedling *Antirrhinums* in beautiful bloom, rich and varied, and singularly fresh and bright. The plants are of the dwarf or Tom Thumb type, and the growth is even, all the plants being in full bloom at a height of 12 in. Sown in pans under glass early in April, and planted out in June, they have thriven well; and should the winter spare them, will produce a large amount of spikes next summer. It is from old plants such as these would be that the finest exhibition spikes are obtained. Intermediate Stocks also sown early in the spring under glass, furnish a continued display of autumn flowers. To get them into bloom well in the summer the seed should be sown in October under glass, and the plants when large enough should be pricked out singly into small 3-in. pots for the winter. Planted out early in May they will flower richly in July and onwards. The spring-sown plants flower later, and very late if the early winter be open. Pentstemons sown in the spring are equally valuable for late autumn blooming, and if spared by the frost make fine plants the following summer. The beautiful Japan *Anemones* are just now coming into bloom. These will be glorious all through the autumn, the moist season having suited them exactly. Asters are late, and will give plenty of autumn bloom; indeed, there should be no lack of autumn flowers this season, provided we get no early sharp frosts; but a bad beginning has been made, white frosts having been seen in the Thames valley as early as the morning of the first of September, and the nights altogether are very cold.—A. D.

Begonias at Chiswick.—The seedling *Begonias* now in flower at Chiswick are well worth inspection, as they present, without doubt, the newest and best amongst this charming and highly decorative class of plants. Richness of colour, robust habit, and erectness of flower-stem have been specially sought for, and these are seen here to have been effected in a marked degree. Here is a quantity of plants raised from seed sown in February, all in 5-in. pots and all in beautiful bloom; this fact shows that it is quite within the power of any one to have a brilliant display from seed by taking similar pains to raise and grow them. There is a decided gain in erect stems; they hold the brittle pendent blooms more fully up to the gaze of the spectator than ordinary forms, and there is a roundness and fullness about the petals which show that the production of grand massive bloom has but just begun; indeed, it would be difficult to prognosticate the future that is open to the *Begonia*. One thing, at least, is certain, and that is that *Begonias* will presently rank amongst the most beautiful decorative features of our summer and autumn flower shows. In that respect they will prove a great gain. As bedding plants they want further testing, and the robust kinds seen at Chiswick show increased usefulness in that direction; but, to be seen to the best advantage, they must be planted in a setting of dense greenery and where they are sheltered from fierce winds.—A.

Hardy Primulas.—The season which has been so disastrous to all kinds of tender plants in the open air has been just the reverse as regards all the sections of hardy *Primulas*. *P. denticulata* and *purpurea* are as fresh and robust as it is possible to conceive, the foliage remarkably vigorous, and the crowns promise to produce grand heads of bloom next spring. *Primulas* of the *amœna* section have lost their foliage as usual, but show strong, robust crowns and a mass of roots; *P. japonica* has beautiful foliage—indeed, this summer it has been quite a fine-foliaged plant. All kinds of *Primroses*, *Polyanthuses*, and *Auriculas* are fresh and vigorous, and have not lost their foliage materially, or where it has gone the young growth is now

coming up strongly, and the plants will presently have well-furnished crowns. All this points to a fine blooming season for all this family next year, and probably presently a considerable amount of late autumn flowers. Where circumstances will permit, it will be well to get all old stools of *Primroses* and *Polyanthuses* broken up this autumn, as it presents a most favourable time for the purpose; it must be done some time, and it will likewise be well to get all others transplanted as early as possible, as that may check the tendency to autumn blooming. All our seeds saved especially for our own sowing of *Primroses* and *Polyanthuses* were sown as soon as well ripened, and are now well up under glass and showing the rough leaf. Planted thickly in a couple of months here in good soil and in a sheltered place, many of them will flower next spring. A similar batch raised the previous year are now making fine plants, and will yield good heads of bloom next April. All this section of the *Primula* family are easily raised from seed, and not one out of a thousand of a good strain will fail to make charming spring flowers.—A. D.

Ellacombe's Yucca.—Mr. Ellacombe, I see (p. 214), says the proper name according to Haworth is *tenuifolia*. I see this is a species named in Sweet's "*Hortus Britannicus*," but there is no mention of *Ellacombei* or of *Tortulina*. At page 356, Vol. IV., of *THE GARDEN*, Mr. Ellacombe says: "The proper name of *Yucca Ellacombei* is *Y. tortulata*." Can he now inform us where this name or *Tortulina* originated? Is it really the variety named by Haworth as *tenuifolia*? If so, it would be advisable that the other names, under which it appears to be more generally known at present, should be done away with, or at least preserved only as synonyms.—ROBERT A. OSBORN, *Fulham*.

Rain-proof Plants.—To the list of weather-proof plants (p. 174), allow me to add the once favourite, but now much neglected, bedding plant *Cuphea platycentra*, commonly called the Cigar Plant. The heavy rains which we have lately experienced only appear to have had the effect of intensifying the rich green of the foliage and imparting additional lustre to the flowers. This plant really seems to enjoy the heavy washings which have proved so inimical to flowering plants generally. Although not so brilliant as many of our summer bedding plants, this *Cuphea* is capable of producing an excellent effect when grown in combination with other free-flowering subjects. The flowers are produced in great profusion, the habit is of the neatest, and the plant retains its beauty unimpaired quite to the end of the season, and may even then be lifted with a ball and stem, and placed in the conservatory, lasting in good condition nearly up to Christmas. Hardy *Fuchsias* should also receive a word of commendation for their wet-resisting properties. Some of the florists' varieties, such as *Rose of Castile*, also appear to bear without injury a considerable amount of rainy weather. Then we must not forget the *Clematis*, the beauty of which the most unseasonable weather has not the power to dim. We shall probably not for many years experience a more trying summer than the present for summer flowering plants, and yet I never remember seeing the *Clematis* in finer condition. I have lately had the opportunity of seeing some fine masses of *Jackmanni*, *rubro-cœrulea*, *Lucy*, *Bowei*, &c., which, as regards quantity, quality, and freshness of bloom, were simply perfection. Truly the *Clematis* is a glorious plant for our English climate! so hardy that it requires no care in the winter, demanding but little attention during the growing season, to which recommendations add that of its not being surpassed for effect by any of those summer flowering plants which tax the skill and patience of the grower during the winter months to preserve in health, and I never hesitate to recommend the *Clematis* to those who desire to beautify their gardens at but little trouble and expense to themselves during the spring and summer months.—J. CORNHILL, *Byfleet*.

An Unusual Phenomenon occurs here as a result of this wet season. In a rook's nest, at the very top of a *Pinus insignis* 65 ft. high, a grain of Oats has vegetated and has produced three stalks, each carrying a head of Oats now nearly ripe, and standing clear against the sky not less than 2 ft. or 3 ft. above the highest part of the tree. The grain was probably carried up by the parent bird to feed the young rooks, together with the worms from an Oat field in the early spring.—J. J. R., *Penrose, Helston*.

Substitute for Box Edgings.—The practice of using the small-leaved *Spindle Tree* (*Euonymus microphyllus*) as a substitute for Box, as an edging for walks, &c., though perhaps not novel, is certainly deserving of more extended knowledge, as it is even more desirable than Box on account of its greener and neater appearance, and also the greater facility with which it may be kept in order. In Messrs. Lee & Son's nurseries it is extensively used for such a purpose, and with capital results. It is, moreover, perfectly hardy, and does not assume a brown appearance through excessive drought.—W. G.

THE FRUIT GARDEN.

SECURING STRAWBERRY RUNNERS EARLY.

WE are perhaps as unfavourably situated as anybody for getting early crops of any kind, but in the case of securing Strawberry runners early for forcing I do not think we could compete with our neighbours unless we resorted to special measures. Very likely some of your readers who may be situated like myself may long ago have adopted the same means as I am about to recommend; but, as a rule, I believe our plan is not commonly practised. Had we waited during the present season for our Strawberries to form runners before commencing layering operations we should certainly not have had plants fit to pot till nearly September, whereas we were not much later than usual, and had all our stock potted before the end of July, and our 5-in. or 6-in. pots are now well filled with roots, and the plants are of good size, with crown projecting 1 in. above the surface of the pot and as thick as one's finger. In those portions of our Strawberry plots where the runners have been allowed to grow between the rows in the usual way without layering, I find at this date (August 28) that a very small proportion of them have yet got hold of the soil, and in looking over them the other day to get some runners of Vicomtesse Héricart de Thury for a neighbour, plants sufficiently rooted for transplanting could hardly be found. I state this merely to show how late we are and the advantages of the plan adopted to hurry the runners on for potting. It is well known to cultivators that the Strawberry does not put out all its runners at once, but produces them in succession, some being much more advanced than others, and it is the custom to wait till a sufficient quantity is produced before beginning to layer, in order that the work may be completed at one time, as well as an even lot of plants secured; and besides the plan enables one to have all the stock conveniently together. This plan answers perfectly well where runners are produced early enough under any circumstances, but it would not do here. We therefore layer from our forced plants put out early the previous season in good soil, and also from autumn-planted runners that are cropped as well, and from these we select and layer the very earliest runners they produce, not waiting for the runners to show leaves, but pinching beyond the first joint as soon as a joint is visible, and while it is yet destitute of leaves. The point is layered in a good rich compost, and it is surprising how the encouragement thus given promotes the formation of roots and leaves, resulting in plants fit for potting much sooner than they could be secured by the ordinary method. Naturally runners are not disposed to throw out roots before leaves are formed, which in their turn excite root action, but by pinching as soon as a point can be got hold of beyond a joint, and pressing the heel down into the soil, and holding it there with a small stone, both root and top growth are excited at once, and a stout early plant is the consequence. In advocating earliness in the case of runners for forcing, I wish to be understood that I consider from the middle of July till August early enough to pot in 5-in. or 6-in. pots, and when runners can be had fit for potting them by the ordinary method, there is no necessity for resorting to extra measures. Under ordinary good management the pots ought to be crammed with roots before the growing season ends, and the plants should have part of September and all October to mature their growth. The practice of nursing either the runners before they are potted, or afterwards under glass frames, cannot be too severely reprobated. A Strawberry plant for forcing that cannot be grown from beginning to end out-of-doors is not likely to be worth much for any purpose. No one, I am sure, is likely to recommend such a practice who has had much experience in Strawberry culture; still the practice has been advocated, but it is the last shift of the shiftless who neglects his work at the beginning. There is no place I fancy within these islands, unless it be in some unfavourable localities of the far north, where Strawberry plants need the protection of glass at any time before they come to be forced for fruit.

J. S. W.

The Cherry Plum.—I lately saw in the gardens at Burghley a large tree of the Myrobella or Cherry Plum (*Prunus myrobalana*) literally laden with fruit. For the early spring when in blossom as well as at the present time in fruit it is a most ornamental tree. Owing to the early season of the year at which it flowers (as a companion to the Bitter Almond), it does not usually bear a crop of fruit unless, as in the present instance, it is in a sheltered place. We have in the nursery here a large tree of it which flowers generally very freely, but, standing in an exposed position, it has very rarely been known to bear fruit. It may be safely recommended for ornamental plantations, and well deserves a little shelter. Some say that it makes a very good hedge plant.—ROBERT A. OSBORN, *Fulham.*

VINES AND VINE BORDERS.

THIS season will be long remembered for its abundant rainfall and its absence of sunshine; indeed, the one fact always accompanies and hinges upon the other, and it is worth while to enquire what influence such an exceptional season may have had upon Grapes growing under glass. So far as I have seen, where the borders have been well drained, the abundant rain seems to have been an advantage, especially as regards black Grapes ripened from June onwards. Even those Vines carrying very heavy crops have coloured well, and have a denser bloom than usual. In some early houses the Grapes did not colour well, judging at least from the examples I have seen at the different exhibitions, which was probably due to the necessity of hurrying them on with fire-heat, with, perhaps, rather less ventilation than in ordinary seasons. The perfect colouring of Grapes seems to me to be dependent upon the presence of three conditions, which may be briefly stated thus: first, abundant moisture at the roots, but not stagnation; secondly, a buoyant, freely-circulating, constantly-changing atmosphere—and this latter condition implies contact in some way with the atmosphere outside the house; and thirdly, abundant and healthy foliage, to maintain the roots in a constant state of activity. If the main leaves are healthy and plentiful, I fail to see what advantage can be got from the encouragement of much lateral growth; although I know good Grape growers who practise and recommend it after the Grapes begin to colour. But I think fully developed leaves will perform the functions of respiration and assimilation better than imperfect leaves can do. But if the main leaves have been injured, or are deficient in substance or quality, then the lateral growth may be extended with advantage. Sometimes the colouring of black Grapes may be imperfect from too high feeding. Very high living may swell the berries out abnormally, but it plays mischief with the colour. This generally arises from the too liberal use of very strong stimulants, such as guano in a liquid form; the system of the plant becomes overcharged, the berries swelling unequally, often assuming a gouty appearance, and, of course, failing to colour. In such cases a little more freedom of growth to the laterals will be judicious, and will help the colouring immensely if done in time. It acts in the same way as exercise or work does upon an animal or man of plethoric habit—gives a better and healthier tone to the system, and aids Nature in maintaining the necessary balance.

From what has come under my own observation, I think where the borders are well drained there is less shanking, less mildew, and less disease generally, this season. If the conclusions I have drawn are correct, it would seem to strengthen the inference that in dry seasons Vine borders do not get sufficient water. Borders made on a thoroughly drained base will take a deal of water. Look at the quantity of water that may with advantage be given to a Vine growing in a pot, and an artificially constructed border (especially if shallow and circumscribed in its limits) is only an enlarged system of pot culture. When the watering has to be done by manual labour, the chances are against a sufficiency being given in a dry season, either from a misapprehension of the quantity required, or from a lack of force to do the work. Though sunshine, by its action upon the leaves and young wood generally, doubtless does indirectly influence the laying on of colour, yet, in the case of black Grapes, the best-coloured bunches are commonly found in the densest shade. But Muscats and other thick-skinned white Grapes require a strong light, such as is produced by bright sunshine, to finish them off properly. Though Vine borders that are raised above the natural level, and are otherwise well drained, will not become sodden or waterlogged from even the exceptional rainfall of the present season, yet I am afraid, where the drainage is imperfect, and the composition of the border has become close and pasty in consequence, that mildew and shanking will be prevalent. But where this is so, there is an undoubted advantage in being able to trace the effect to the right cause. And we may feel assured, if the composition and drainage of the border are all right, the rainfall, large though it is, will not affect it injuriously. Wherever the damp season has brought into prominence the defects of the border, their remedy is mainly a question of labour and a supply of the requisite materials. No doubt some seasons of the year are more suitable than others for lifting and replanting Vines; and with houses where the fruit is cut or is ripe enough to cut, the sooner the work is done now the better.

Grapes that are ripe may be cut, with a portion of wood attached, principally below the bunches, and the end inserted into a bottle of water in which a little animal charcoal has been placed; they will thus keep as long, if hung up in a dry room—sufficiently but not over ventilated—as if left on the Vines. And if the roots of the Vines can be lifted, and be placed quickly in a healthy medium, a season will be gained, as they will take hold of the new soil and get established this autumn. The work must be carefully done, the materials for making the new border being chopped up,

mixed, and prepared before the old border is interfered with; the same also as regards concrete or rubble, or whatever is used in the foundation. In the case of concrete the materials could be ready for mixing, so as to get the foundation in as soon as possible; indeed, where the labour power is ample, after a portion of the border has been cleared, all the roots carefully packed in damp litter, and covered up with mats, another party may commence the laying of the foundation; and when sufficiently set or consolidated, the new border may be made tolerably firm, and the roots laid carefully in the new soil at once. Unless the work can be done before the leaves fall, it will be better to delay it till March or April; and this perhaps will be the best time to renovate or renew the borders of all late houses. Where the border is partly inside and partly outside the house—which I think is the best arrangement—either portion may be renewed without giving much check to the Vines if done at a favourable opportunity, and if the work is carefully and quickly carried out. But in all such work promptitude has a great value.

In all cases where the subsoil is bad, some efficient means should be adopted to keep the roots from entering it, and from four to six inches of good rubble and lime concrete is the best. The bed of concrete should have sufficient fall from back to front to cause all water that soaks through the border to pass quickly off to the drains in front. Borders of greater width than 10 ft. should be intersected with cross drains, laid on the face of the concrete 6 ft. apart, to empty into the drain in front. From 9 in. to 12 in. of stones or brickbats should be laid on the bed of concrete to drain the border, the largest stones being laid in the bottom, and a layer of small stones or broken bricks on the top, so as to ensure the whole being kept clean and free from soil; and to still further ensure this, a layer of sods should be placed, grass side downwards, on the stones before the border is made. A border so constructed will last many years, with occasional renewals of the surface and round the front and ends. There are some soils that are so well drained naturally, from the subsoil being of a porous nature, that generally, so far as ordinary cultural operations extend, they require no artificial drainage. But Vine borders, where superior results are sought, will have something better than ordinary cultivation. The annual top dressings, and the richer character of the soil generally, from frequent manurings, will gradually make the border more retentive—so much so, as in wet times to prove a bar to the speedy evacuation of surplus water, and the roots may receive a sudden check from the lowering of the temperature by the greater accumulation of water. It is at such times that drains prove valuable in soils that are naturally dry; and the removal of stagnancy only once will pay for the labour and expense of drainage.

There are some neighbourhoods where the soil is naturally suitable for Vine culture, and to which beyond trenching and adding bones or other manure little need be done. I know more than one place where large Graperies are established upon sites so suitable as to require no addition beyond manure. But these are exceptional cases, and, speaking generally, it does pay in the majority of situations to take extra pains in the preparation of the border, as it will often make the whole difference between good and bad fruit. This being so, the present season seems peculiarly fitted for taking stock of the Vine borders generally, with a view to remedy any defects of construction or composition.

Wherever Vines are lifted before the leaves fall, the house must be shady in bright weather, and a damp atmosphere maintained inside in order to keep the leaves up, as it is only by their action and influence that root action can be set up.—E. HOBDAV.

IRRIGATING STRAWBERRIES.

FIVE of us went the other day to inspect a system of irrigation. The place is a mile from the centre of the neighbouring village, and we found a force of several hands picking Strawberries from rows of very vigorous plants, the result of a system of irrigation. They were just prime for market after all other berries from the vicinity had ripened and were gone, save a few insignificant boxes that could in no way affect the market. It took us a very short time to learn the following facts:—

1st. Under the system practised the berries were two weeks later than the general crop of the vicinity, and they were sent into the market when the prices were remunerative.

2nd. The plants were vigorous and independent of rains, so that every berry that set could reach perfection in size and flavour.

3rd. The necessity of picking every day or every other day for the sake of saving a few berries that would otherwise become over-ripe, was entirely obviated, and a picking once in four or five days would be very large and a rapid gathering at the least possible outlay, was accomplished.

4th. The fruit, becoming more mature without losing its firmness, was more luscious, and yet scarcely anything was lost in the charac-

ter which every berry picked for market must have to hold its shape until sold.

5th. The vigorous condition of the plants gave protection to the berries from the direct rays of the hot meridian sun, which preserved even those which were over-ripe from so soon losing flavour.

We then inspected the method of irrigation, and while walking to the fountain-head we had ample opportunity to view the vegetable garden, which we found in a most flourishing condition. The Cabbages and Tomatoes particularly attracted our attention, because of their forwardness.

"How's this?" we enquired of the owner; "your method of irrigation puts back your Strawberries but puts ahead your vegetables."

"Cabbages," he replied, "are advanced, to be sure, because it is leaves we are after, and our method tends to a very rapid growth of foliage. But with Tomatoes I need to make this further explanation: the fruit develops in size very rapidly, but should we continue to regularly apply our water, the ripening process would be retarded the same as with Strawberries; but as soon as the fruit is of fair size, we withhold the water, and they ripen rapidly. We have found that there is a good deal of study connected with properly and economically employing irrigation in the garden." So we thought, after witnessing this anomalous state of things.

"We water," said he, "only to supplement the rain. If the season is a wet one, we employ our artificial system little or not at all, and in such seasons get no profit from our investments; but generally some time during the season we get a drought that shortens some crop, then we irrigate that crop, and have the advantage of our neighbours."

The fountain of supply from which the water was taken, we found to be a spring, dammed up at a point which was a little higher than most of the garden. The water was conveyed in a wooden conduit made of 2 in. plank, rendered water-tight by the use of coal-tar. It was, perhaps, 8 in. wide and 1 ft. deep. At intervals of about 8 ft. auger holes were bored near the top of the conductor. The rows of vegetables and Strawberries run at right angles to the line of the conduit, and are so arranged that each alternate space between the rows comes opposite a hole in the conductor. When the water is wanted in any particular locality, a cut-off is made just beyond the opening at this point, and the water being let on at the fountain-head pours out a nice stream and follows down the row. The surface of the ground has been carefully graded, so that the progress of a stream of water let on is very slow, giving plenty of chance for the water to settle about the roots of the plants. Having once secured a place with the natural arrangement of a spring at some point higher than the general surface, this process of irrigation is an inexpensive one.

A word regarding the management of the Strawberry fields at this place. After the berries are removed, the ground between the rows is thoroughly cultivated through the remainder of the season; the plants run together in matted rows, and in this condition are wintered. Early in spring a good coating of long stable manure is given. That which has begun to decompose a little, or that in the making of which short wheat straw has been used, is preferred. This manure is spread evenly over the surface and the plants make their way through it easily. By the time the berries are ready to be picked it is all down close to the ground between the rows. The covering is placed on in the spring to retard the blossoming as well as to preserve from evaporation the water that is employed in irrigating the rows.

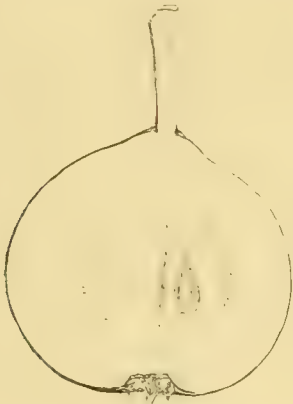
Rural New Yorker.

Late Grapes.—The dark sunless season which we have experienced has had a good effect in keeping down insects on Vines. I have not seen any symptoms of red spider this year on either early or late Vines; this, no doubt, is the reason why Grapes, as a rule, have coloured so well, and beginners in Grape growing will do well to observe how essential it is to keep the foliage clean and free from insects if well-coloured Grapes be desired. Late Grapes are very much behind their usual time in changing colour, and the same remark applies to the wood; fire-heat must, therefore, be given at once freely and early in the afternoon, to assist the sun-heat, which is now on the wane; otherwise, the result will be immature fruit and wood, which produces bad-keeping Grapes and disappointment as regards the future crop.—JAMES SMITH, *Waterdale*.

Premature Ripening of Pears.—Although Pears, in common with other fruits, are extremely small and backward this season, many of the ordinary early ones are already dropping from the trees, apparently ripe but with very little taste in them. In addition to the extraordinary rainfall and low temperature, there appears something ungenial in the atmosphere, as, now the long expected warmth has arrived, crops do not seem to thrive as they do in ordinary seasons.—J.

GREEN CHISEL AND OTHER PEARS.

ALTHOUGH lacking the fresh and abundant flesh of the Jargonelle, and the, to some, agreeable if full musky aroma of Williams's Bon Chrétien, there is, nevertheless, much to appreciate in this little old-fashioned Pear. As gathered from the tree its plump little fruits are fresh, crisp, and juicy, far more refreshing to my mind than the Williams's, now so abundant; indeed, it is only excelled in cool juiciness by that distinct and beautiful Pear Louise Bonne de Jersey, the taste of which, like that of the Jargonelle, one could recognise, even were a fruit handed to one in the dark. I have not Hoggs's "Fruit Manual" by me, but here is Scott's description of the Green Chisel, and a good and short account it is: "3 size, 2 qual., August. Roundish turbinate; skin green, with a slight brownish tinge next the sun; stalk long and straight, and inserted without depression; eye large and open, with a few protuberances around it; flesh white, juicy, and sugary. An old sort, cultivated since the year 1650. It is sold in the Paris Markets in large quantities under various names." The Trout or Forelle Pear of the French is a most beautiful fruit; indeed, this and Beurré d'Amanlis Panache are the most handsome perhaps of all Pears. They are not either the best or most useful—not to be mentioned in that way "in the same breath" as, say a creamy-yellow Marie Louise from a sunny wall. I have in my eye another handsome fruit, the true Louise Bonne, which I well remember to have seen at Chiswick in the old days—a medium-sized fruit of a peculiar shade of soft, wax-like creamy-yellow; indeed it was difficult to imagine it a real fruit, so perfectly concolorous and delicate is its skin on some soils. Scott's description under this name must be of some other fruit, or his specimens may perchance



Section of Green Chisel Pear.

have been from an unfavourable locality, for of all fruits the Pear is perhaps the most affected by change of soil; what is first-class in one place and a great "cropper" may only be fit for pig feeding or a non-bearer in another garden. I am extremely fond of the delicious little bronzy-red Seckel, which at its best is a delicious *bonne bouche* to any lover of good fruit. The secret of Pear culture may be best taught to oneself by visiting neighbouring gardens to note the kinds that succeed, and the stocks on which they are grafted; then go home and plant young bush trees. Plant them well in good fresh soil—turfy loam—a cartload at least to each tree. Mulch with stable manure the next summer. If the Quince stock suits the locality and the varieties worked on it, then plant the Quince for early fruit. B.

HEALTHY APPLE TREES IN COLD CLIMATES.

PROF. W. J. BEAL writing in the *Farmers' Review* says: We know there is much difference in the capacity of varieties of Apple trees to endure severe weather. In one case with which I am acquainted trees of the Baldwin in an orchard were nearly all killed, while in another orchard less than half a mile away with nearly the same elevation, the Baldwin trees were uninjured. The soil of the first was black loam, and relatively low and flat; that of the other gravel and relatively a little elevated. To prepare trees to endure severe weather, I would prefer to set with pains, in well-prepared soil, trees one or two years old of some variety known to be quite hardy, then insert several buds or grafts of such varieties as are desired in the tops of the young trees. Set the trees leaning against the prevailing wind; start the tops very low near the ground; encourage a leader in the centre of the tree. Thin the top moderately all around

the outside, no more in the centre than on the sides. Never cut off a limb much if any over 1 in. in diameter, and avoid cutting any limbs from a large limb. Rub off the young shoots if they are not desired. Each tree should have plenty of room; in large varieties when twenty years old or more 40 ft. each way will not be too much. The rough bark should not be scraped from the trunk or large limbs, as it affords some protection, but insects should, of course, be diligently kept off. The cultivation should be varied according to the nature of the soil and climate, so that the trees shall start off well in the spring, and stop growing early enough to mature the young wood and buds. This growth can be controlled, in most cases, by tilling the soil more or less, by using or withholding fertilisers. The growth should be moderate, not rank nor stunted.

While the trees are young, the surface of the ground should be heavily mulched for 4 ft. each way from the tree. In no case must a tree be allowed to over bear, especially when young. Most clay loams—good strong wheat lands—are excellent for Apples, provided they are always artificially drained. The importance of thorough drainage for healthy trees in a cold climate needs to be emphasised. It is often the key-note to success, and the one often neglected. Another point of scarcely less importance is elevation; the land should be relatively high compared with other land in the neighbourhood. A difference of 150 ft. in elevation has been known to show within one mile, in a still, cold night, a difference of 17°. From this elevation the cold air rolls off like water down a slope. If a person is obliged to plant Apple trees on ground which is nearly flat, it should be first ploughed into high ridges, the higher the better. Plant the trees on the ridges after they are made, and not make the ridges after setting the trees. The time has come when more attention must be given to a proper selection of site, soil, and drainage, if the owner expects good returns for his labour in planting and caring for an Apple orchard.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Remedy for Mildew.—At a recent meeting of the Academy of Sciences in San Francisco, Dr. Arthur W. Saxe, of Santa Clara, made, according to the *Prairie Farmer*, a statement of a series of experiments made by himself during the past few years, to the effect that a solution of copper, sprinkled over Grape Vines just before the starting of the buds, is far better than sulphur to prevent mildew, being cheaper and more easily applied. He stated that during no season had he seen any sign of mildew when he used this solution, but that one year he neglected to apply it, and the result was that the Vines were badly affected.

Denyer's Victoria Plum.—Amongst the few outdoor fruits that are doing well this year may be reckoned this well-known Plum, a variety that has received more commendation than any other kind this year. It succeeds well as a pyramid or bush tree, but it well deserves a wall, as in seasons like the present a well-ripened dish of Plums is certainly preferable to a meagre crop of Peaches, that, except in the case of early sorts in favoured localities, do not look like ripening at all. The Victoria is a sort moderately strong in growth, and, when well ripened, in addition to being a good dessert Plum, it is extremely useful for culinary purposes, either ripe or green, as from its free-bearing properties in most years it requires severe thinning to allow the remaining fruits to come to perfection. The latter make excellent tarts in a green or immature state, and when ripe they make an excellent preserve, as, for the size of the fruit, the stone is very small.—J. G., *Linton*.

Black Currants.—Amongst fruit crops that have been profitable this year must be named Black Currants; for not only have they yielded generally fair crops, but their price has kept up well, the bulk of the crop selling at from 10s. to 11s. per sieve, which is greatly in advance of Red or White Currants. The cultivation adopted here in Kent that produces good results is extremely simple, a great many being grown in orchards between other kinds of fruit trees, such as Apples and Plums, which being planted in rows 18 ft. apart, allow space for two rows of Black Currants, or other bush fruits between them. They are well thinned out at the winter pruning, and manure is dug in between the rows, as they are gross feeders, and delight in a rich, moist soil. They are greatly benefited by a mulching of manure over the surface to prevent evaporation, and keep the stiff land in this locality from cracking, thereby admitting the drought. When grown in open quarters, 6 ft. is the regular distance at which they stand apart each way; and in good rich soil they soon occupy all that space. The favourite sorts here are the Black Naples, a very robust, sturdy grower, a good cropper, and rather late; Baldwin, a large berried variety; the Grape or Dutch Black, an old, well-known kind; and Lee's Prolific, one of the best new sorts, highly spoken of for market purposes. Black Currants

are not so liable to the attacks of birds or insect pests as other bush fruits, and are generally a reliable crop; so that any one having rich, moist land will find them to yield as good returns as anything in which he can invest.—J. G.

TREES, SHRUBS, AND WOODLANDS.

MAGNOLIA GRANDIFLORA.

MR. Groom (p. 122) has not said too much in favour of this plant. Its claims can indeed scarcely be overrated for the purpose he mentions. The broad, handsome, glossy leaves and massive growth render it one of the most distinct evergreens that we possess, and a bush or two of it in the pleasure grounds impart quite new features thereto. I have often remarked that this shrub harmonises in a peculiarly pleasing manner with most forms of architecture, and that when employed either in the way of drapery or as growing in its own free natural way, it imparts an air of richness and even grandeur to the surroundings. Single isolated specimens upon the Grass have a fine appearance, but a well-developed group is truly grand. When in Normandy I had a mass of some fifty trees planted upon a raised bed. They grew with great luxuriance and flowered with the utmost freedom; as thus seen no flowering shrub could equal it. When one takes into consideration the remarkable hardness of this shrub—I say remarkable, for it passes unscathed through winters which sweep off wholesale many of our commonly considered hardy shrubs—the beauty of the foliage, and the agreeable fragrance of the lively pure white flowers, one may reasonably be permitted to express surprise that it is not more commonly grown. I was recently passing through some of the most populous districts of Surrey and Middlesex, and the Magnolias there seen in the villa gardens might be counted on the fingers of one hand. In one garden I remarked a pair of handsome bushes flanking the entrance to the dwelling, the effect of which was of the best description. There is probably more than one cause why the Magnolia is not more extensively planted. In the first place many do not know that there are two distinct varieties, one of which but seldom flowers—and then often but sparingly—until old; whereas that which is known by the name of the Exmouth variety commences to throw up good blooms at an early period of its growth. It is this latter kind which should be sought for; but it unfortunately happens that many nurseries hold a stock of the older kind, and purchasers, not being aware that this difference exists, do not make proper enquiries upon the subject, but plant in good faith that which is supplied to them, and, finding but little reward in the shape of bloom, naturally conclude that our climate is not favourable to its development. I have recently seen a plant of the true Exmouth variety, quite a small bush, but which is already commencing to throw up bloom. I may mention that it came from Messrs. Pince & Co., of Exeter, where it may readily be obtained true to name. This free-flowering kind is, I believe, considerably dearer than the older variety, but a little expense in purchasing should not be grudged if it will secure an early and plentiful yield of fragrant flowers. I am also inclined to believe that this Magnolia is often transplanted at the wrong time of year. I believe that at M. André Leroy's nursery, at Angers, no trees are warranted to succeed unless transplanted in August, and I well remember that at the Paris Exhibition of 1867 some large pyramids which were moved in March dropped a considerable portion of their foliage, whilst those transplanted later on, and which were planted in a hot time, received no check. The plants should be moved at a time when the earth is warm, so that the roots immediately grasp the new soil, in which case there is but little danger of the leaves falling. In the case of the Magnolia if once the foliage drops there is but slight chance of renovating the plants; when once the lower leaves are gone the beauty of the specimen is marred, never again to be restored.

J. C. B.

HORIZONTAL EXTENSION OF TREE ROOTS.

THIS is a subject not always sufficiently taken into account in planting trees in particular situations, as, for instance, near fruit tree borders, in which their presence, if in any considerable quantities, is fraught with the worst consequences, especially if from time to time they cannot be cut back. So far as my own observation has gone I have found that although some trees extend their roots naturally much further than others, nevertheless the nature of the soil has a good deal to do with their rambling far or keeping comparatively near home. Where there happens to be a deep rich loamy soil, neither too wet nor too dry—such, for instance, as the alluvial deposits in the immediate neighbourhood of a river or stream of some extent—the roots of such trees as Oak, Elm, Plane, Horse Chestnut, Spanish Chestnut, Lime, Hornbeam, Ash, and Beech do not, as

might be supposed, run so far as in poorer, shallower soils, more especially if there should be a “pan” or water-holding under-stratum nearer the surface than the depth to which the roots would otherwise naturally descend. When they happen to occupy a medium that affords all the food they require within a moderate distance, as might be expected, they adapt themselves to the circumstances under which they are placed, and do not extend far abroad, this being to a considerable extent governed by the strength and size of the individual examples of trees according to their kinds, for the underground portion—viz., the roots—of any tree, as a rule, will be found to proportionately correspond in bulk with the above-ground part—the trunk and branches. It is scarcely necessary here to point to the fact that Nature in this, as in other works, directs the roots in a way that enables them to perform the double duty of extracting from the earth the food needed for the sustenance of the above-ground portions, and also in holding and preserving the tree in its proper position. Evidently, in order to fulfil this latter purpose, the evergreen kinds, retaining, as they do, their leaves all the year round, thus offering correspondingly more resistance to the winter gales, have the bulk of their roots lying horizontally near the surface, where they are in the best position to resist the greater strain made upon them than is brought to bear on those of the at-this-season deciduous kinds; yet none of these that I have ever had an opportunity of tracing extend so far as some of the deciduous species. Amongst evergreens the roots of the Scotch Fir have travelled the furthest of any I have met with—47 yards from the trunk—but it was a large example with a big bare stem, so far as I was able to make out, some 240 years planted. The roots of several Silver Firs extended 45 yards away from the bole in considerable quantities as thick as one's finger, and had their small fibres been followed to their extreme ends they would have reached a few yards further. Cedar of Lebanon I have seen with its roots 45 yards away, but this was the extreme length. Amongst all other trees, deciduous or evergreen, English Elm has come under my notice with the longest roots. A number of years since when we were digging gravel, I came upon roots of this tree 54 yards in length, 1 in. in diameter, and doubtless they went several yards beyond this, but we could not follow them to the end. There was no mistaking the distance they had come, for the nearest and only tree for a considerable distance was an Elm, an old big example, from its appearance, I have no doubt, above 200 years old. Beech I have found over 45 yards from the tree; Oak and Plane had reached about the same length; Ash, wherever I have had an opportunity of tracing them, have not extended so far, being more inclined to fill the ground near home. The above are the greatest extensions of roots that have come within my observation. Often in open drains or other excavations in the neighbourhood of these kinds of trees, I have found that the roots did not reach nearly so far, being, I have no doubt, influenced by the nature of the soil or other local circumstances. A knowledge of the subject has, I admit, more of interest than real utility attached to it, nevertheless, for the reasons I have stated, in exceptional situations it is well to be able to form an estimation of the length the roots of trees will attain. I feel a little anxious to know if the roots of Elm have been found further extended than those in the case I have instanced. That they are most hungry food hunters I have often had evidence, I recollect once having some Vines under my charge, the border of which was some 30 yards from a good-sized Elm; to prevent the roots of the Elm entering it, a 9-in. brick wall set in cement, and 4 ft. deep, had been built round the outside, coming up to within 4 in. of the surface, over which was a grass verge, and beyond this a broad deeply gravelled walk. The Vines showed signs of weakness, and on examining the border, I found many more Elm roots than Vines roots. When we came to remove the old border completely, with a view to making a new one, and planting fresh Vines, I discovered that none of the Elm roots had got through or under the brickwork, but, in the few inches of soil above its top, they had got over in quantity, several being as thick as a man's wrist.

T. BAINES.

Scarcity of the Hemlock Spruce.—Official returns show that in New Brunswick the Hemlock Spruce (*Abies canadensis*) is becoming as scarce as in adjacent parts of the United States. “It is found only in certain parts of the island, and is rapidly diminishing, owing mainly to the ravages of fire, to which it is peculiarly subject, and to the fact that a large number of trees are cut down for the sale of the bark only, the timber being left to rot in the ground.” The reports from the other parts of the Dominion bespeak the same reckless waste of all kinds of timber. In British Columbia, which has an area about twice that of the United Kingdom, two-thirds, or in round numbers 110,000,000 English acres, are still covered with timber. A variety of the Hemlock Spruce is one of the commonest trees there.—“Timber Trades' Journal.”

VARIEGATED TREES AND SHRUBS.

THERE is nothing which adds to the beauty of garden scenery so much as judiciously arranged groups of ornamental shrubs and trees; but how often do we meet with shrubberies which present a dull, monotonous effect simply because there is a lack of variety in the forms and tints of the subjects employed. During the spring and early summer months a few of the finest flowering shrubs intermixed with evergreen kinds give to ordinary shrubberies a picturesque appearance; but, after these are past, the sombre tints of green leaved trees and shrubs, unrelieved by variegation, is prominently conspicuous; but where variegated-leaved plants, mixed with those of golden hue, are planted, an ornamental appearance is ensured for the greater part of the year. The taste for variegated-leaved plants is becoming more general than formerly, and each season has brought with it a host of new forms of silver and golden leaved plants, till now there is scarcely a hardy tree or shrub the leaves of which do not present some form of variegation, as a recent walk through Messrs. Lee & Son's Arboretum at Isleworth, where there is a rich collection of such plants, amply confirms. Here one may meet with almost every kind of variegated tree or shrub at present known, and these, combined with others of all descriptions, produce a highly picturesque effect, especially at this particular season, when the majority of the plants are assuming their brightest hues. Amongst the most conspicuous of these we noted the beautiful tri-coloured Dogwood (*Cornus elegantissima*), alluded to last week. The form with the variegation without the suffusion of pink is also a desirable shrub, as the white margins of the leaves are so well defined; it is called *C. Mas argentea variegata*. The variegated cut-leaved Elder is a very handsome shrub, and one which should be seen in every shrubbery. Its defect, however, is that oftentimes the variegation is confined to a branch or two only, the leaves of which become creamy-white, and the rest of the plant quite green, though in this state it is effective. In this nursery the variegation is developed much better than we have hitherto observed, a circumstance probably owing to the exposed position of the plants. The Judas Tree (*Cercis Siliquastrum*) has a pretty marbled variegation, though not very effective. The variegated forms of the common Sweet Chestnut (*Castanea vesca*), the Horse Chestnut (*Æsculus Hippocastanum*), and Ash (*Fraxinus excelsior*) are very ornamental, the former having the varieties marked both with white (*alba marginata*) and gold (*aurea marginata*). The variegated Maples are numerous, but none are so effective as the well-known *Acer Negundo variegata*. Of Oaks there are also a goodly number with variegated foliage, one of the prettiest being the Turkey Oak (*Quercus Cerris*). The Tulip Tree (*Liriodendron Tulipifera*), the Lime (*Tilia alba*), the False-Acacia (*R. Pseudacacia*), the Western Plane (*Platanus occidentalis*), the Japanese Sophora (*S. japonica*) the Bird Cherry (*Cerasus Padus*), and a host of other familiar trees are all represented by variegated forms, which are more or less beautiful. The variegated-leaved Privets are especially noteworthy, as they form such effective subjects in combination with the green-leaved kinds. *Ligustrum japonicum*, *lucidum*, and *ovalifolium* are those which possess the variegation.

Though the present season has been adverse to the full development of the variegated plants, it has not materially affected those with golden tints—indeed, the rich hues of some kinds are as fine as we have ever seen them. No better golden-leaved plant is to be met with than the Catalpa *syriaca*, and it should be more extensively planted than it is. Next to this is the Golden Elder, which this season has been highly effective in the parks, &c. A golden form of the common Elm named *Ulmus campestris aurea Rosseelsi* is a striking tree of a somewhat drooping habit and forms a mass of rich yellow foliage. *Alnus glutinosa aurea* is another valuable addition and forms a fine contrast with the green foliage of others. Of other kinds with similar tinted foliage there is a long list to be found in this collection.

Conifers are numerous represented by golden and variegated varieties, the most conspicuous of which are *Cupressus Lawsoniana alba spica*, the variegated Deodar, *Thuja Lobbi aurea variegata*, Golden Chinese Juniper, and the Virginian Red Cedar. The silver-leaved evergreen *Sequoia, S. sempervirens*, is another valuable form as it makes a striking contrast to the deep green tint of the original. The same may be said of the silvery-leaved variety of the erect growing *Cupressus Lawsoniana*, which will be more apparent when it is seen in a larger size. Of golden forms there are a good many, and all very desirable for associating with those with green foliage.

Diversity in habit of growth is another important point to be considered in selecting subjects for effective grouping. Of pendulous growing trees and shrubs there is a great variety in this nursery, and equally numerous are those of stiff erect growth and every intermediate style of habit between these extremes. The varieties with cut foliage afford another interesting feature, some of which

have an extremely graceful aspect, whilst to others it gives the appearance of being in a depauperated condition. W. G.

TWO CALIFORNIAN SHRUBS.

THERE are probably none of our native shrubs more worthy of cultivation than *Rhododendron occidentalis* and *Pickeringia montana*. Both have such a wide range of habitude and altitude that with a little care in the selection of well-drained soils they would probably do well under any ordinary circumstances.

According to our "Geological Survey," the former is found by streams throughout the State, but I have never found it except on the tops of ridges, generally in company with the *Pickeringia*; the latter, however, seeming to have a much greater range, extending to the low ridges bordering the valleys. The *Rhododendron*, or as it may be more properly called, *Azalea*, presents a magnificent sight when in bloom, each stem appearing an immense wand of dazzling white, thrown into beautiful relief by the dark green of the plant's leaves. On a near inspection many of the blossoms show a fine dash of yellow, and I am inclined to think age gives to many of the blossoms a bright rosy tinge. The flowers are of much firmer texture than our greenhouse *Azaleas*, and a sweet odour is not the least of their attractions; the plant is deciduous.

In my several attempts to transplant it to my garden I have been unable to give the plant what I consider a fair trial; several grew nicely in boxes, and formed an abundance of fine roots, which were unfortunately drowned by over watering; a few bloomed in my garden, but they fell victims to the disturbing influence of the gopher. Any piece of its knotty crown will send up new sprouts, so the plant can be had in any shape.

Pickeringia montana seems to be partial to foggy situations, for in such it produces leaves enough to hide its nakedness, as well as a brilliant show of its spikes of crimson bloom and a few seeds, while on fogless ridges it bears but few leaves and blossoms, forms no seeds, but its grey, thorny branches present an almost impenetrable barrier to all but the smallest animals. This property would suggest its use as a hedge plant, as it would grow in the driest places, and where there was moisture enough it would present a magnificent spectacle. It is an evergreen, and I believe will propagate readily from its underground stem or root.—J. B. HICKMAN, in "California Horticulturist."

Oreodaphne californica (p. 142).—I fully agree with Miss Hope in her estimate of the beauty of this shrub, but not in her advice to use it for its scent in nosegays for hospitals. The scent is very pungent, and though pleasant at first very soon becomes unpleasant and even offensive; and it is apt to cling a long time to the hand that touches it. I have a larger specimen than either of those mentioned by Miss Hope, so I speak from experience.—HENRY N. ELLACOMBE, *Bitton*.

Pruning Laurels.—Evergreen trees and shrubs of all kinds have made an exceptionally vigorous growth this year owing to the dripping, sunless weather; and hedges and banks of Laurels, Privet, Yew, &c., will require more than ordinary attention as regards pruning. If left too long they look bare when cut, and the only way to have dense hedges always full of evergreen leaves is to clip or cut two or three times during the growing season. I am no great advocate for the shears, but in some cases we cannot dispense with their use, and the only way in which we can get over the difficulty is to use them often when the growth becomes so dense and compact that one can scarcely detect how the Laurels or other hedges have been pruned, for, if done by skilful workmen and good tools, an even, unbroken surface of the freshest green is the result. If all clipping is completed at once, the growth made during the rest of the season will be enough to clothe the surfaces with a dwarf spray, just sufficient to take off the straight-laced aspect of ordinary hedges. It is a mistake to let hedges get into a neglected state, as it not only takes more time to rectify them, but they look unsightly for years afterwards.—J. G.

Effective Planting.—Variety in landscape scenery is pleasing, especially when viewed from the windows of a mansion or from terraces or other elevated parts of the garden. A clump of Golden Elders, for instance, planted on a hillside in proximity to a belt or plantation of sombre Pines could not fail to produce a striking effect even a long distance off. Ordinary shrubberies and plantations might be made much more cheerful looking than they are by the introduction of gold and silver and other forms of trees and shrubs, such as the following, viz., Golden Catalpa, silver Acer, purple Acers or Maples, purple Filbert, the various golden and silver Elms, purple Beech, silver Limes, golden and silver Poplars, the graceful

silver Birch, the new weeping purple Birch, golden Acacias, silver and golden Cornus (various), green Acacias, Liquidamber, the Paulownia imperialis (with its fine foliage), golden Laburnum, and golden-scarlet Oaks. Of the last there are many beautiful shades and tints, and the leafage of some of them is of very large size; the scarlet and bronzy hues producing grand effects, especially towards the end of the season. Very many others might be named which, when associated with flowering shrubs and trees, would look well in any landscape. A few weeping trees, and also variegated Hollies, golden Yews, golden Retinosporas, golden Thujas, and many others of recent introduction too numerous to name, would all form materials which in the hands of skilful planters could not fail to produce charming results.—GEO. CANNON, *Eding.*

ONE YEAR'S SEED SEVEN YEARS' WEED.

THOSE among us whose views are far removed from Mr. Gladstone's, and who by no means look with favour on parts of his political career, must nevertheless admire the versatility of his genius and the delightful way in which he imparts the knowledge he has acquired during the course of a somewhat extended life. He allows others to reap with him the golden harvests of his toil. Our Cincinnati, no longer at the head of the nation's affairs, is fain to content himself with rural pleasures. He has evidently given much time and patient consideration to the subject of gardening, and he communicates his knowledge in a very agreeable and practical manner. Most of us have read with pleasure the account of an address delivered in the Park at Hawarden, at the horticultural show held there, when Mrs. Gladstone presented the prizes. I will merely draw the attention of the readers of THE GARDEN to what was said about weeds.

Mr. Gladstone, after urging the necessity of more spade husbandry, quotes from a book on "Cottage Gardening," by Mr. Badger, who describes a weed as "a thief and a robber." He goes on to say, "A weed is a destructive noxious thing; it occupies the room of something which is useful, and draws nourishment from the ground, which ought to be applied to a different purpose. As to robbers of the human kind, they are immediately turned over to the police, but weeds are not less truly thieves on a larger scale. The probability is that weeds in this country rob farmers and cottagers of a great deal more than all other depredators put together. Weeds should never be allowed to seed, for 'one year's seed seven years' weed.'" This morning, which was warm and sunny, with a fresh westerly breeze, whilst taking my usual country walk I found my coat covered with a quantity of Thistle-down; the air seemed full of this. Mr. Gladstone's words recurred to my mind, and I endorsed all he said on the importance of clearing the ground at this season, of weeds to prevent their seeding. The neglect of this needful precaution is not only ruinous to the fields and gardens of the careless cultivator, but it entails great trouble on others of less slovenly habits. It is difficult to calculate how much time is thus wasted, and it is sad and disheartening indeed for the unfortunate farmer whose land adjoins that of the man who is ably described by an ancient writer in these words: "I went by the field of the slothful, and by the Vineyard of the man void of understanding: and, lo, it was all grown over with Thorns, and Nettles had covered the face thereof, and the stone wall thereof was broken down." Without entering into the question as to whether the large amount of ground occupied by hedges and ditches in this country may be put down as unprofitable and waste land, it cannot have escaped the notice of the most casual observer that the neglect of clearing these of weeds before the seed time arrives causes them to become fruitful nurseries of these useless plants. There cannot be found more troublesome and expensive weeds to eradicate than Couch Grass or Quitch, Thistles, Dandelions, and Docks. The former, when infesting light land, has sometimes to be removed by cartloads. Now much of this harvest of pests to the farmer and gardener has been produced by self-sowing from plants growing in ditches and hedges. The seeds are small and easily carried away by high winds.

Our officers of health spend a great deal of time and the rate-payers contribute large sums of money to compel men to dispose of the house refuse and sewage, which if allowed to remain in their midst would produce a vast amount of disease; but this compulsory power and supervision is altogether wanting in the case of the slovenly cultivator of the soil. Let us hope in our advanced age that the appointment of a Minister of Agriculture and Horticulture is not far distant, and that probably when our eloquent lecturer is summoned from his retirement to take his place in the councils of his country, he will arm that Minister with plenary power and authority to compel the destruction of useless and noxious plants. Every acre of English ground brought into cultivation is most valuable and ought to be turned to the best account. If kept perfectly clean and

well managed, the produce will be of better quality and more abundant. Thus whilst the supply of food for man and beast is largely increased the money value of the land will be much enhanced.

Hillside, Newark.

W. NEWTON.

PLATE CXCVII.

GROUP OF NEW AZALEAS.

Drawn by CONSTANCE PIERREPONT.

DURING the past twenty years a great improvement has taken place in these fine spring and early summer-flowering plants. The continental raisers especially have produced varieties of large size, with finely formed blossoms, either self-coloured of some distinct shade or handsomely striped and flaked, and all remarkable for abundance of bloom. It is one great distinguishing characteristic of the Indian Azalea that it flowers most profusely, and that year after year, if properly managed. Owing to this and to other qualities of a strikingly useful character, many hundreds of new, and in not a few instances greatly improved varieties have been introduced to cultivation, and many raisers have devoted much time and attention to obtaining new forms by means of careful cross-breeding.

In the accompanying illustration are representations of a few of the newer kinds. Fürstin Bariatinski (No. 1) has large white flowers, flaked—sometimes very broadly—with a pale carmine-red; the blossoms are of fine form, stout, and the trusses of flower bold and imposing in character. It is from the collection of Messrs. W. Paul & Son, the Nurseries, Waltham Cross. Mlle. Léonie Van Houtte (No. 2) is a very fine variety, the large and well-formed white flowers being flaked with rose and dashed or spotted here and there with sulphur-yellow. Souvenir du Comte de Gomer (No. 3) is remarkable for its rich colouring, the flowers being of a vivid crimson-red hue, and very striking in appearance, and also of fine form and substance. Flambeau (No. 4) is of a glowing crimson colour, and is regarded as the deepest coloured Azalea yet raised; it is also singularly bright and effective. The last three are from the collection of Messrs. Veitch & Sons, Royal Exotic Nurseries, King's Road, Chelsea. A few of the newer Azaleas that are most desirable varieties to cultivate will be found to be the following: Bijou de Paris, white striped with rose, extra large; Comtesse de Beaufort, rich rose, with a deep crimson blotch on the upper petals, extra fine; Grand Monarch, deep pink, shaded with warm rose, very large; Jean Vervaene, deep rich salmon, distinctly edged and sometimes striped with white and spotted with dark on the upper petals, extra fine; Madame Ambroise Verschaffelt, violet-rose, shaded with white, the upper petals finely marked, very showy; Madame de Greve, deep rose, edged with white, striped with salmon, and having dark spots on the upper petals; Marquis of Lorne, orange-red, very free and showy; Mrs. Turner, bright pink, margined with pure white and spotted with crimson, a very beautiful and useful variety; Noble Belgique, white ground, with large deep rosy spots, flowers of large size; and Sigismund Rucker, rosy-pink; netted and edged with white, and with handsome dark blotches, extra fine.

Of late years a double-flowered section has been added to the group of Indian Azaleas. Double-flowered Azaleas are not new, for the old A. Borsig, with its double pure white flowers has been in cultivation for a long time past; but some eight years or so ago a batch of new varieties was sent over from Belgium, and these gained great favour in this country, being so fine and distinct. Some of the best double varieties will be found to be Bernhard Andreas, pure white, and very free; Charles Leirens, dark salmon, with black blotches, very fine and showy; Comtesse Eugene de Kerchove, white, striped with cherry, very fine; François Devos, double red, very showy; Grande Duchesse de Bade, bright orange-scarlet, very double; Imbricata, white, slightly flaked with rose, very double—indeed, the flowers resemble in appearance those of a Balsam; Madame Louise de Kerchove, salmon, edged with white, very fine; Madame Charles Van Eckhaute, pure white, exceedingly large and double, and handsomely fringed; Mlle. Marie Van Houtte, white, flamed with salmon; Souvenir de Madame Rudolph Abel, salmon, edged with white, and spotted with crimson, very fine; and Empereur de Bresil, clear rose, banded with white, and marked on the upper petals with glossy red, extra fine.

Azaleas are much more easily cultivated than many other hard-wooded plants that are grown in pots, and they are not so liable to die off suddenly as is the case with some other things. The Azalea is a plant requiring to be kept in a perfectly healthy condition, and thoroughly clean; when plants are in a sickly condition, it is often the result of allowing them to get over-run with red spider and thrips during the season of their growth. Azaleas are very subject to these pests, and when they infest the plants they are certain to become unhealthy. It is a common fault with amateur



GROUP F NEW AZALEAS

ROBERT BARNETT, 1, MADISON STREET, LONDON, W. 1. SOUVENIR DU COMTE DE GOMES, 412, FLORISSANT.

cultivators to keep the soil about the roots too dry, and when the compost about the roots, which become matted together like a ball, gets dry, it is difficult to thoroughly moisten it again with ordinary watering, and the pots should be set in a pail of water till the soil is thoroughly saturated in every part.

One excellent characteristic of the Azalea is that it will stand any amount of cutting from, much more so than most hard-wooded plants. After the bloom is over, the plants need to be placed in a brisk heat and kept well syringed, when they will make a quick growth and become well furnished with buds for another season. After blooming, the plants, except in the case of very large specimens, should be repotted. The large plants will probably not require potting for several years, and must have some weak liquid manure applied to them occasionally. They should be placed in a temperature ranging from 50° to 60°, giving plenty of air when the weather is favourable, and using the syringe freely morning and evening. When the growth is completed, the temperature must be gradually lowered until they can be removed outside to ripen the wood and swell up the flower-buds. In the autumn they must be removed into the greenhouse before frost sets in. The soil best adapted for them is three parts good fibrous peat, one part light loam, one part leaf-mould, and one part sand; and it is very important that the drainage should be maintained in good condition. The foregoing brief cultural remarks, from the pen of an experienced plantsman, may be useful to beginners.

R. D.

GARDENING FOR THE WEEK.

Flower Garden.

Though a great improvement has taken place in the weather, the season is now too far advanced for bedding plants to grow much more, or even to continue as good as they now are, except for a very short period, but by way of giving some little assistance to the prolongation of their beauty, let dead and decaying flowers and foliage be kept pinched off, and the outlines and groundwork of the various designs should be scrupulously preserved by pinching or pegging as may be necessary; all the surroundings, too, such as turf, Box, edgings, paths, walks, &c., should be kept neat and trim. Though the season has been remarkable for high winds, we may soon expect to have more of them, and therefore all tall-growing plants should be securely staked, and climbers tied in. Remove suckers and straggling shoots from Roses, and see that standards are also securely staked. Any recently budded plants should be examined, and those buds that have fairly started into growth may have the ligatures removed. The propagation of the various kinds of soft-wooded and tender bedding plants ought now to be completed, in order that they may have time to get well established in their pots before cold, damp weather sets in. Offsets of many kinds of Succulents can now be had in quantity. All the *Sempervivums* strike root readily in a cold pit, and in any kind of soil, if not over watered; a good watering when the cuttings are put in is about all that is required till they have rooted. The commoner varieties, such as *S. calcareum* and *S. montanum*, root and winter well on a south border, but till they are rooted and established in the ground they should be netted over, or birds pull them up in their search for insects. The offsets of *Echeverias* should be afforded the protection of glass where practicable; otherwise they winter tolerably well at the foot of a south wall, particularly if planted on an incline to throw off the rain, which is more fatal to them than frost. *Kleinias* and *Pachyphytums* propagate best in spring after the old plants have made new shoots; a temperature that suits *Pelargoniums* does equally well for growing and propagating these. Sedums, Saxifrages, and all other hardy dwarf carpeting plants can be increased to any amount by division, an operation which may be done at any time. These latter are all good plants for winter bedding.—W. W.

Auriculas.—The Rev. F. D. Horner's remark "that Champion (Page) and Freedom (Booth) will be superseded by new sorts before these old favourites can be plentiful" is good news to Auricula growers, and doubtless what Mr. Horner states will be fulfilled. I have been trying to raise a good green edge or two by crossing Apollo (Beeston) with Col. Taylor (Lee) and have a number of seedlings that indicate the cross in the foliage most unmistakably, but what the result may be I am as yet unable to say; of three which have flowered one is a bastard self, the two others are yellow grounds with green edges. Now I do not grow any other yellow ground but the double yellow, and no plant of that was near the seed-producing plants. Whence then comes this curious sport? I can only account for it on the supposition that the Auricula is going back to its normal state, a yellow self. Mr. Horner has obtained the same results at Kirkby Malzeard. It certainly seems a singular phenomenon. Although Col. Taylor is one of the very best green edges, I am informed

by Mr. Simonite, of Sheffield, and other growers that no good seedlings have been raised from it. Our plants are still under a north wall, but all that have produced autumn trusses are being removed and placed in an open situation in order to enable them to form new hearts before the winter.

Carnations and Picotees.—Some 3-in. pots of these, after being layered, were placed in the greenhouse merely to try whether or not the layers would root more quickly, and I am now inclined to think that no advantage is gained by allowing them to remain in the house. Still, I fancy if the plants can be placed under glass for three or four weeks after being layered they are all the better for it, placing the pots again out-of-doors. The young layers make too much growth under glass, and the leaves become infested with green fly. Those who raise seedlings to a large extent will have many good varieties that will flower late. The best plan with these is to lift the plants bodily out of the ground and pot them, layering the growths at once. This will be a very disastrous season for saving seeds of the finer varieties. A dry season with plenty of heat suits the Carnation and Picotee best if the object is to save seeds. As far as blooming is concerned, some of the best growers say they never had a better season.

Dahlias.—Mr. Rawlings, of Romford, once told me that this noble autumn flower can be had at its best about the third week in September, and if the present favourable weather were to last a goodly display could be obtained even this season at that time. It is astonishing to ordinary observers, and most interesting to the lover of flowers and plants, to notice how they seem to recover themselves and, as it were, take advantage of a short period of fine weather. Dahlias are now crowded with flowers and buds, and if the nights are warm there will be a gorgeous display of flowers. Still there are ominous signs that winter will set in early. We read that not far from London the thermometer has already fallen to the freezing point, and at Loxford 34° have been registered, i.e., 2° above the freezing point; as I write, too, the thermometer is falling, and if we have more rain it will be disastrous. The swallows, too, are taking their flight from our shores, another sure sign that cold weather is approaching. There is still plenty of work in disbudding and tying the stems of Dahlias to their supports. If this is not done a gale of wind may make fearful havoc amongst them.

Gladioli.—These ought to be at their best now, but they are not; still, the present favourable weather has wonderfully improved their appearance. Those intending to exhibit spikes of them about the end of this month must now be attentive to tying the stems to sticks as they advance in growth, and it is quite necessary to shade the flowers in some way. If a movable tent can be erected over them, and a light canvas shading be used to screen them from the sun, and also to throw off the rains, it will be a great advantage. Still, this kind of treatment has certain drawbacks, and one is that plants are shaded that ought to be freely exposed, in order that the bulbs may be more perfectly ripened. A very good way to shade is to take from four to five pliable sticks about 7 ft. or 8 ft. in length, and stick them in the ground round the plant to be shaded, then bend them inwards, and tie them at the top over the spike; then place a newspaper over the sticks, and tie it to them at the bottom and top. This arrangement answers better than those who have not seen it tried would be led to expect; the paper will stand sun, wind, and rain, but it will not stand wind and rain combined. Still I have exhibited many hundreds of spikes, all of which were preserved for exhibition in this way.

Phloxes in Pots.—These are still most useful in a decorative point of view for the greenhouse, in which they make quite an interesting display, and when mingled with the glowing tints of zonal *Pelargoniums*, single and double, few arrangements are more beautiful. The Phloxes and *Pelargoniums* can be grown out-of-doors together all through the summer, and may be brought indoors as they come into flower. The Phloxes as they go out of bloom must be cut over, and the young plants should be placed out-of-doors, when they can be watered as they require it; or it saves trouble to plant them out.—J. DOUGLAS.

Conservatory.

For some weeks after this there is generally a greater scarcity of flowering plants for conservatory decoration than at any other season of the year, and the difficulty has been considerably increased in recent years when so many fine and distinct flowering plants have been left uncared for in favour of collections of zonal *Pelargoniums*, and others of like character, which, although well in their way and very useful where the numbers grown are kept within reasonable limits, yet fail to give the satisfaction that more variety is capable of doing; but if the various plants from time to time recommended have been properly prepared, the early autumn scarcity of flowering subjects can be got over with a fair amount of bloom. Where sufficient numbers are grown of the most distinct habited kinds of tuberous Bego-

nias, especially the narrow-petalled drooping sorts generally so much more profuse in flowering than the erect varieties, they will be found very useful. The latest Lilies of the Speciosum section will be also of great service along with Fuchsias treated as recommended earlier in the season, so as to induce them to bloom late.

Lapagerias.—As regards both the red and white kinds of these, although essentially climbing plants and most effective in that way, yet now, when they are becoming more plentiful, there is no way in which they can be made more useful than by growing some in pots so as to admit of their being moved about to conservatories or other places when in flower. Whilst they are of medium size they need not be placed on stiff wire trellises in the way in which large examples are grown in pots, but loosely wound round a few erect green painted sticks inserted just within the rims of the pots. In this way they will have a more pleasing appearance, and when they get so large as to require permanent support there is no necessity for training so close and formally on the trellis as is usually done, for when the flowering shoots are left hanging loosely, they look much better.

Celosias of the pyramidal section, sown at the time recommended and grown on, will be found most serviceable for conservatories, especially where there is a little heat turned on on cold nights and in damp weather; but whilst here, similar to all other plants in a temperature lower than they absolutely like, they must receive no more water at the root than is necessary to keep them from flagging, for although simply annuals, and injury in this way to them not of so much consequence as in the case of plants of a more permanent character, yet if treated so as to preserve their roots as long as possible they will continue longer in a presentable condition than they otherwise would do. The same kind of treatment is also applicable to the old Globe Amaranthus, another subject equally well adapted for conservatory decoration.

Standard Heliotropes and Habrothamnuses managed as recommended through the spring and summer will now take their place in the conservatory, and where a little extra warmth is kept up, later on the Heliotropes will continue to flower almost to the end of the year.

Heaths, the latest autumn flowerers, which are much more backward this year than usual, can likewise be made to do duty in cool conservatories, placing them in the lightest position that can be had, and being careful not to overcrowd them.

Oranges, &c.—Any of these that for a time may have been in Vineries, or similar places, should now be transferred to conservatories. It is in all cases advisable before introducing them to sponge the leaves, and to free them from any insects that may be upon them. Where good gardening is aimed at, this is a matter that at all times requires attention, for one foul specimen taken amongst a clean stock will very soon affect the whole, entailing an unlimited amount of extra labour.

Removal of Stove Plants.—It will be necessary now to remove from this structure any flowering or fine-leaved subjects that have been located here during the summer, as the weather will begin to get too cold for them, and their places may be occupied by such plants as those already referred to. It is scarcely requisite to add that a thoroughly clean condition of the internal portion of a conservatory is an absolute necessity, if anything like satisfactory effects are expected. On such summers as the present the continual use of water overhead, and that which runs from the pots, has a tendency to produce the green, unsightly mould which affects the stone stages and floors, usually more or less present in modern structures of this kind. Water diluted with arsenic, and other destructive agents, is frequently used for cleaning the green substance here spoken of, but there are several objections to this course, and I have found nothing equal to a free use of a good soft scrubbing stone, hot water, and soap. The present is the best season for effecting a thorough cleaning of conservatories previous to winter, including the glass and woodwork being washed, where this is not already done; at the same time all pots should be well washed, so that everything in the arrangement may have a neat, tidy appearance. When such is maintained it does much to compensate for the more limited display of flowers present than earlier in the season.

Greenhouse.

Housing Plants.—In the cooler portions of the kingdom it is not safe to leave hardwooded plants out much longer without there exists some temporary movable protection, such as a canvas covering on rollers, resting on a light wooden framework, than which no more useful appliance exists in a garden, as not only can it be used to keep the plants from drenching rains during the summer, but they will be safe for some weeks yet by running the cover down over them in the evenings when there is an appearance of frost. Where there is not some appliance of this sort they should be got in at once,

previous to which the house, as recently advised, ought to have had a thorough cleaning. Every plant liable to the attacks of mildew should be examined before being taken in, and where any trace of the parasite is found dust freely with sulphur, for not only can the presence of the mould be much easier detected now than when the plants are arranged, but the chances of its affecting others that are free from it are avoided.

Tying Azaleas.—The tying of these plants will, as a matter of course, be regulated by the purpose for which they are required. It is an unfortunate circumstance where plants have to be conveyed in bloom to an exhibition, even for a short distance, that it necessitates their shoots being secured to a much greater extent than for home decoration; for the latter purpose just a single stick to each of the principal branches is all that is needed, so as to keep them reasonably in shape without any formal training. If the tying is done now before the wood gets too hard, the leaves and ends of the shoots will assume a natural position. The whole of the plants ought to be gone over to see that they are free from their worst enemy thrips, as if these are now destroyed along with their eggs no further inconvenience will be experienced from them during the winter, and there is a reasonable chance of the plants remaining free from them when growth again commences. After all the various remedies that have been tried, there is nothing so safe and certain of killing these insects without injuring the foliage as Tobacco water.

Cyclamens.—Plants of these that have been grown on freely under glass near the roof, yet guarded from the sun, will usually be found in a much more satisfactory condition—even in the case of old examples—than when exposed in the open air. The second season after sowing they are generally the most useful; but young stock raised from seed sown about a year ago, where well managed, will by this time have made fine bulbs that will bloom well. They will yet require care to keep them free from aphides and red spider, although the latter pest will not from this time cause so much trouble as earlier in the season. If, however, any happen to be present they will yet injure the leaves to an extent that will much interfere with both the appearance and well-being of the plants, as Cyclamens more than most things suffer from the presence of insects. Plants that have been managed on the exposing-in-the-open-air system after flowering, if not already potted, should be attended to in this respect; but it is much better to defer the operation until they have commenced to push up new leaves freely than to pot whilst they are in a comparatively dormant state, as they rarely take freely to the new soil unless the roots are in an active condition at the time of potting, immediately after which they should be placed in frames or pits where growth can be encouraged. A little warmth will be of very great service, for though they may be grown in a temperature such as that which ordinary greenhouse plants require, still there is no question that treatment slightly warmer is more conducive to their well-being, and in the case of young plants they get up to a useful flowering size in much less time.

Chrysanthemum frutescens.—The partiality which often exists for double flowers has caused many to be prejudiced against these useful decorative subjects, both yellow and white. Their single blooms being so much like those of the common Ox-eyed Daisy has hitherto been in the estimation of many much against them, but their elegant Fern-like foliage, which adapts them equally for cutting as for general decorative purposes in the form of pot specimens, with their easy cultivation and continuous blooming habit, render them amongst the most useful plants that can be cultivated for ordinary greenhouse and conservatory embellishment. Plants that have been grown with a view to their blooming in the winter, which they will do freely if placed in a little warmth, should not be allowed to remain out-of-doors too late. If they have had plenty of room in an open position, and if the leading shoots have been stopped in the early stages of their growth, they will now be strong and sturdy, requiring no support except it may be that of single sticks in the centre of each plant. Cuttings put in now in a little warmth and in other respects treated in the usual way will root quickly. They should be kept in small pots through the winter, and they will make pretty little plants in spring; or they may be grown on to a large size out-of-doors next summer.

Veronicas.—Where these are propagated in winter or spring, and then planted in the open ground with a view to lifting and transferring them to pots for autumn and winter flowering, it is not well to defer the taking them up too long, especially in a season like this when both earth and air are considerably lower in temperature than ordinary. All plants treated in this way should be turned out in soil sufficiently sandy and light to admit of their being taken up with no more mutilation of their roots than may be unavoidable. Although these Veronicas are naturally such free growers that they recover the loss of fibres much quicker than many plants, yet with those that come into flower early in autumn, such as *V. Andersoni*,

injury to their roots more or less interferes with their blooming. They are subjects that require a good deal of water and will bear the soil to be thoroughly moistened as soon as potted in a way that would be fatal to more delicate-rooted plants; they should be set close under a north wall or similar position, so as to be out of reach of the sun for ten days or a fortnight after they are taken up; or if there happens to be room in a house or pit where they can be kept a little close, it will be still better.

Berry-bearing Solanums.—Plants of these also that have been similarly planted out should at once be taken up, using pots no larger than will admit their roots. If the soil is of a free light character, a good portion of it may be shook away and fresh material given them in the pots; these likewise should have the soil thoroughly moistened, or they will flag to an extent that will injure their leaves, a condition that must by all means be avoided, as it is to obtain plenty of healthy green foliage, which contrasts so well with their bright-coloured berries, that the planting-out system is advantageous. If pits or frames are at liberty that can be kept close and also shaded when it is sunny for two or three weeks, it will be the most suitable way of treating them. They may be placed tolerably close for the short time they are kept here, but not so much so as to injure the leaves. These plants, like everything else, are late, and in many places where there is a crop of berries on them grown to their full size, they are yet producing flowers. The points containing these latter will be better pinched off. As soon as they are potted they should have a good washing with the syringe, so as to free them from any dirt that may have got upon them in taking up, and they may be damped overhead once or twice daily in bright weather until the roots have begun to act, after which it is advisable to discontinue anything calculated to promote top growth, as with many the object will be to get the berries of the earliest plants fully coloured with as little delay as possible. I should advise a good stock of cuttings being put in, made from the young, soft, still growing shoots of the earliest plants; they will strike readily treated in the usual way, kept moist in a moderate heat. This I am aware is not the usual season for the propagation of these plants; but cuttings struck now will be much in advance of, and make better plants than, those put in in spring at the ordinary time, or than raised from seeds sown then.

Salvias.—There are many who treat these and other winter-flowering things of a like character on the planting-out system; in all cases they should be at once taken up and potted, treating them very similarly to the Solanums.—T. BAINES.

Hardy Fruit.

Continue to remove, as opportunity offers, the redundant wood from fruit trees generally; most trees are again breaking into renewed growth, the result of the excessive moisture that has so long prevailed, and restriction by pinching must be followed up, both to expose the ripening fruit, and to plump up and ripen the fruit buds for next year. Apricots and Peaches should be kept closely tied, or nailed in, and all sublaterals removed as produced. We gathered Early Louise Peach from the open walls on August 29th, but no other kind has yet any appearance of ripening, and, indeed, the later varieties are still so small that they cannot possibly ripen, and might as well be removed from the trees at once. As showing the lateness of the season we are only now (Sept. 5th) gathering Early Orleans Plums; the later varieties are not near ripe, and the wood is as sappy and green as at midsummer, so that unless we have a most favourable autumn to ripen it there can be no fruit next year; meanwhile, however, and by way of giving some little assistance, keep the growths well stopped, in order that full light and sunshine may act on next year's fruiting shoots. Some few kinds of Apples and Pears are ready to gather, but the latter are poor indeed, and I fear it is hopeless to expect that any kinds will be up to the usual standard this year, either as to size or flavour. As a rule, early Apples and Pears are very tender fleshed, and require the greatest care in gathering, as the least bruise soon develops into full decay. For the same reason they should be stored on the fruit room shelves in single layers only. Above all, see that none are gathered prematurely, or they will not ripen, but shrivel, or be sticky and hard. In none but the most favoured localities as to weather, can Figs be expected to ripen this season, but where there are any approaching maturity, they may be aided by full exposure, and keeping the wood thin and the foliage tied aside if it overlaps the fruit. Grapes certainly cannot ripen, and therefore the Vines should be denuded of their bunches, and the growth closely stopped back, in the hope of ripening the growth for another season. Note should now be taken of all trees that are growing too vigorously, and which will require root pruning, also of any that require assistance to increase root action by the addition of new soil and top dressings, and also of all new planting, and plants required for the same, so as to have all in readiness for planting next month—October being the best planting season for all kinds of hardy fruits.—W. W.

Extracts from my Diary.—September 15 to 21.

FLOWERS.—Putting in cuttings of Mrs. Pollock Pelargoniums. Picking decayed leaves off Pelargoniums. Tying shoots of Chrysanthemums. Taking up from north border and potting Richardia æthiopica and Dicentra spectabilis for forcing; and potting Stag's-horn Pelargonium for winter blooming. Putting in a few cuttings of Poinsettias for late blooming in 3-in. pots. Putting in cuttings of Iresine Herbsta and Heliotropes for stock. Taking up roots of Violets with good balls of earth, and planting them in a cold pit previously prepared for them for winter blooming. Pricking herbaceous Calceolarias out of seed pots into pans. Staking and tying Carnations in pots, and moving them into cold houses. Potting Primulas for late blooming. Putting in cuttings of Iresine Lindenii for stock.

FRUIT.—Tying, stopping, and fertilising Melons. Gathering all Wyken Pippins; also Golden Noble Apples. Picking runners off newly-planted bed of Strawberries, and weeding them. Nailing mats on ripe Peaches to retard them. Getting in Perpetual Pine Strawberries for winter fruiting.

VEGETABLES.—Planting ground after Onions with Little Pixie Cabbages for spring use. Sorting Regent Potatoes, which are more liable to disease than some other sorts. Turning manure and leaves to induce fermentation. Making another plantation of Little Pixie Cabbage, and sowing Mustard and Cress. Planting Hammersmith-Hardy Green, and All the Year Round Cabbage Lettuces. Digging ground on which have been Cauliflowers for Lettuces. Clearing old Cabbage for next crop. Putting night soil on ground and digging it in ready for planting Tripoli Onions. Pulling up old Cucumbers and preparing house for storing Pelargoniums for the winter. Planting Giant Rocca Onions on ground previously dressed with night soil and lime. Tying and stopping winter Cucumbers.—R. GILBERT, Burghley.

THE INDOOR GARDEN.

THE BRACKENS.

(PTERIS.)

THE Brakes or Brackens of this country are familiar to every one. Owing to their profusion they form a striking feature of our woods and moorlands, and, in company with other allied species, constitute dense thickets in the uncultivated parts of most tropical and all temperate regions. The genus, as at present constituted, contains over a hundred species, many of the varieties of which are richly crested and variegated. Their foliage presents every variation in division, from sagittate to quadripinnatifid. All the species are characterised by having their sori arranged in continuous marginal lines and by having evergreen foliage, with the exception of the common Brake (*P. aquilina*) and its varieties (*P. esculenta* and *P. caudata*), which are deciduous. They may for the most part be propagated freely from spores or by division of their rhizomes. Some of the choicer kinds are increased by means of bulblets, which they produce sparingly. The soil most suitable for the stronger-growing kinds is a mixture of light loam and good leaf-mould in equal proportions, with about one-fourth of the whole of river sand; the tenderer sorts do best in a soil composed of equal parts sandy peat and leaf-mould. It is important to drain well. Those with foliage of a coriaceous texture require a dry, airy situation, and all the temperate kinds are benefited by being grown in a cool frame during the summer months, with full exposure to sunlight. The kinds enumerated below are among the most useful of our cool Ferns:

Pteris umbrosa.—Few Ferns present such a majestic appearance as a well grown specimen of this plant. The lowest set of fronds, which are barren, form a kind of undergrowth, and screen from view the stipes of the taller ones. These fronds are tripartite, the upper division of which is cut down to a winged rachis into from four to seven pairs, and the two lateral divisions into from two to four pairs of linear-lanceolate pinnae, which are from 8 in. to 12 in. in length. Above these barren fronds are situated several which are intermediate in character between the barren and fertile fronds; and, above all, rise the entirely fertile ones, on tall, erect, round stipes. The pinnae of these are much narrower than the others and are gracefully reflexed. The whole plant is of a bright dark green,

and attains the height of 3 ft. or 4 ft. It is indispensable to the smallest collection. In distribution it is confined to tropical and temperate Australia.

P. cretica. This plant is often sold as a substitute for the preceding, which in some respects it resembles. Its barren fronds are simply pinnate, and from 12 in. to 15 in. in length, with a wingless rachis, and the lowest pair of pinnae bipartite. The pinnae are opposite, lanceolate, wavy, and finely toothed. Those of the fertile pinnae are much narrower, with acuminate points. *P. cretica albo-lineata* is a variety of this plant, with a broad band of white down each pinna. This variety differs from the type also in the position of its barren fronds, which are prostrate, while those of the type ascend with the fertile ones. The type supplies an abundance of foliage for cutting, and the variety is a most useful decorative plant, and is always greatly in demand. They are natives of the tropical and sub-tropical regions of both Hemispheres.

P. serrulata.—This is a well-known Fern, and produces sporelings so abundantly as to become a common weed in many plant-houses. The varieties of this plant, such as *cristata*, *maxima cristata*, *angustata cristata*, *Applebyana*, *Dixonii*, and *Leyi*, exhibit some extremely elegant forms, the smallest of which are suitable for Wardian cases, and the larger for conservatory decoration and window plants. They are the easiest Ferns to manage, and some are grown on a large scale for market. The type is a native of China, but the varieties are of garden origin.

P. straminea.—This species has a very peculiar appearance, and emits a strong heavy odour when bruised. Its fronds, which, when mature, grow to about 15 in. or 18 in. in length, are triangular and pinnate, with the lowest pair of pinnae again divided, or only bearing two or four secondary pinnae on their lower side, the largest of which are nearest the rachis. The pinnae are lanceolate-acute, and cut into a series of acute serrated channelled segments, which stand nearly erect and face inwards. Well-grown plants of this are very attractive. It is a native of Chili, and is the *P. crispa* of gardens.

P. arguta.—This attains the height of from 2 ft. to 3 ft. when mature, and produces a quantity of light green spreading fronds, which are broadly triangular and tripinnate. The final segments of the barren fronds are oblong-obtuse, and finely toothed; those of the fertile fronds are linear-acute and entire. It is an attractive pot plant in a young state, and makes a noble specimen when fully developed. It is a native of Portugal and the Canary Islands.

P. tremula.—In appearance this comes near the preceding, but its fronds are of a darker green, and grow more erect, and its segments are narrower, and inserted farther apart. It grows rapidly from the sporeling state, and attains maturity in a few months. It is one of the best for a cool Fernery, and in a young state few Ferns can surpass it for table decoration. It is a native of New Zealand, Australia, and Norfolk Island.

P. tripartita.—This is a remarkably distinct species. The stipes, in a mature state, rise to the height of 3 ft. or 4 ft., bearing at their summit a spreading, umbrose, tripartite frond, the divisions of which are furnished with from eight to ten pairs and one terminal of lanceolate, deeply-lobed pinnae. The pinnae of the lower side of the lateral divisions are longer than those of the upper side. The stipes of the old fronds are chocolate-coloured, and form a pleasing contrast with the bright green of the foliage. This Fern is worthy of a conspicuous place in all Fern collections. It is widely distributed throughout the Tropics and warm temperate regions of the Old World, and prefers the temperature of an intermediate house, with very little shading.

P. quadriaurita.—With the exception of *P. aquilina*, this species has the widest distribution of any member of the genus, and is at the same time the most variable; it assumes every form of incision between pinnate, with linear, entire pinnae, and bipinnate, with deeply-pinnatifid pinnae. It also differs in size from a few inches in height to 6 ft. or more. The type has a pinnate frond, with several pairs of linear-lanceolate pinnae, which are cut down nearly to the rachis into linear-oblong lobes; the lowest pair of pinnae, and sometimes the next one or two pairs upwards bear one or two secondary pinnae on their lower side. The rachis, on the upper side, is usually armed with several short spines, each of which originates at a point where the veins leave the rachis. Among the varieties of this protean species are several worthy of special notice, such as *P. sulcata*, a very tall, elegant plant, with long, recurved pinnae, and a brown, polished rachis. *P. argyrea*, with a silvery-white band down each pinna, a most accommodating plant, thriving in any temperature between 50° and 80°, and in a young state one of the best for table decoration. *P. glaucovirens*, with low, arching fronds, and broad pinnae of a glaucous green colour. *P. nemoralis variegata*, a much smaller plant than *P. argyrea*, with a firmer texture, and with the upper surface irregularly variegated

with pinkish-white. *P. tricolor*, the most richly-coloured plant in the Fern family, having a ruby-coloured band down the centre of each pinna, enclosed within a band of white; and *P. rubrinervia*, with a bright, dark green frond, with the veins only coloured red. These variegated forms, with the exception of *P. argyrea*, require to be grown in a comparatively dry atmosphere, and near the glass, to develop their colours.

P. comans undulata.—This is one of the few Fiji Ferns that have become established in our gardens. Its fronds are from 1½ ft. to 2 ft. in length, with a partially winged rachis, and have similar divisions to *P. quadriaurita*, but with a less number of pinnae. The pinnae are ovate-oblong, and are cut down nearly to the rachis into a number of oblong-acute, wavy lobes, of which those inserted on the lower side of the pinnae are twice the length of those on the upper side. It also has the secondary pinnae on the lower side of the basal pinnae, as in the preceding. The habit of the plant is good, and the foliage is of an intensely dark green. It seems to thrive best in the stove.

P. macilentia.—The beauty of this plant lies in the lax arrangement of its divisions. The fronds are broadly-triangular in outline, and bipinnate as regards two-thirds of its length from the base; but the upper one-third consists of a terminal pinna and two or three pairs of pinnae below it, which are only pinnatifid. The pinnae are all placed distantly from each other on a slender, wiry rachis, and are furnished with from two to three pairs of distantly-placed, ovate, deeply-lobed pinnules, and a terminal one ending in an attenuated toothed point. The fronds are crowded together, and form an intricate dome of spray-like foliage, which is of a yellowish-green, and of a firm texture. It is a native of New Zealand, and at present it is very scarce. Those who decorate on a large scale will see in this a very desirable plant.

P. scaberula.—This is so common in gardens that a description would be here unnecessary, but as it is so often confounded with *Davallia Nova-Zelandiae*, or *Acrophorus hispidus*, it may not be out of place to note down their main points of difference. When both are in character, *P. scaberula* is always the largest plant, with a rough, greenish, flexuous, zig-zag rachis, and hispid dull green foliage. *Davallia Nova-Zelandiae* has a slender, wiry, smooth, bright, straight, or sometimes curved rachis, with bright, usually brownish-green foliage; should the specimens be in the sporiferous state, the character of the sori will suffice to distinguish them. *P. scaberula* is very useful for cutting, but if it be left in a dry place after being cut, it shrivels in less than an hour; whereas the *Davallia* would remain fresh under the same conditions for twelve hours or more. Both are New Zealand Ferns.

P. semipinnata.—The appearance of this Fern is both singular and ornamental. It produces a copious supply of foliage from a short creeping rhizome. The fronds are pinnate and from 1 ft. to 2 ft. in length, each of which has from four to six pairs of opposite, lateral pinnae, and a terminal one, which is deeply pinnatifid. The pinnae are deeply lobed on the lower side, and terminate in long, linear points; the upper half of the pinnae is reduced to a narrow wing. The lobes, which are serrated on the barren fronds, and entire on the fertile fronds, are linear-obtuse, and increase in length towards the main rachis. The stipes and rachises are chestnut-brown and polished, and the foliage is firm in texture and of a dark, shining green. It is generally a useful plant, either for cutting, decoration, or for pot culture. It is a native of the Himalaya, Japan, and the Philippines.

P. incisa.—This is synonymous with *Littobrochia vespertilionis*. It is characterised by having a creeping, laterally-branching rhizome, from which rise a number of closely-inserted, arching fronds, varying in length from 3 ft. to 6 ft., and also by having the pinnae, pinnules, and lobes inserted oppositely. The breadth of the lobes is very much reduced in the fertile fronds, a circumstance which, combined with the soft, glaucous green of the foliage, adds greatly to its attractiveness. It is a native of the Tropics of both Hemispheres. Too much shading debilitates this plant; it requires strong, diffused light of day, but not exposure to the direct rays of the sun.

P. heterophylla.—The young state of this plant somewhat resembles the Rock Brake (or Parsley Fern), but in the mature state its divisions are much larger as compared with that plant. It usually grows in tufts of one large and several small crowns, which together form a compact head, rarely exceeding 12 in. in height. The fronds are deltoid and tripinnate as regards the lower half; the upper half, above the lowest three pairs of pinnae, has the same cutting as the lowest pair of pinnae. The segments of the barren fronds are cuneate-ovate, with from five to seven forward-pointing teeth, while the segments of the fertile fronds are oblong and toothed only at the points. The foliage is rather succulent and of a bright green. It is exceedingly pretty and very rare in cultivation, though it is common in Bermuda and Jamaica.

P. longifolia.—Though an old inhabitant of our gardens, it rarely receives the attention it deserves; it is too often treated as a pot plant, whereas it is one of those subjects that delight to have free root action between the crevices of rockwork. Planted in such a position, with a full exposure to light, and in a temperature of from 50° to 70°, it will under favourable conditions produce a crown of foliage quite equal in grandeur to some of our finest Cycads. A fully developed frond usually measures 5 ft. in height, and 10 in. to 15 in. in breadth at the widest part, and partakes of the character of a leaf of *Cycas circinalis*, with the exception of having its terminal pinna extended beyond the rest, so as to form a caudal extremity. It is a native of the West Indies, and, in the Old World, of Spain, Lebanon, and the Himalaya, Tropical Africa, Polynesia, and South Australia.

C. M.

AUSTRALIAN TERRESTRIAL ORCHIDS.

SOME of these, such as *Diuris aurea*, *D. aurea maculata*, and *D. lilacina* (the species here figured), are very handsome and well deserving



Diuris lilacina. (Natural size.)

of attention. The two former produce yellow flowers, which in the case of *D. aurea maculata* are spotted with chocolate. *D. lilacina*, a very pretty species, bears on a spike from 12 in. to 18 in. in height a succession of flowers of a purplish-lilac tint, furnished with two long tails that give it a very grotesque appearance. *Pterostylis Baptisi* is another handsome species. Plants of the *Diuris* thrive well with us planted out in a cold frame in a compost of two-thirds sandy peat with one-third fibrous loam and produce a quantity of flowers.

F. H.

[The specimen from which the annexed engraving was prepared was sent to us by the New Plant and Bulb Company, Colchester, to the collection in whose nursery the above remarks refer.]

Todea superba.—That this beautiful Fern is deserving of more extensive cultivation than it appears to receive is apparent when one sees the amount of cold which it will endure and yet grow well. A short time since when looking through one of the principal London nurseries I was shown a plant of it in a most luxuriant state of health that had withstood several degrees of frost, as the house in which it was growing was not heated in any way.—J. C.

IXIAS, SPARAXIS, TRITONIAS, AND BABIANAS.

THE present time and for a month hence is the proper season to commence the pot culture of these highly ornamental and free-blooming Cape bulbs. Where a large supply of cut flowers is required during the months of April and May, few plants will be found more useful than these for meeting the demand; and their bright colours and graceful spikes are admirably adapted to give relief to a collection when arranged with flowers of a dwarfer character. The soil which we have found most suitable to them under pot culture is a moderately light, sandy loam, enriched with well-decayed cow manure and a slight addition of leaf-mould. Peaty soils should be avoided, as it is difficult to maintain the foliage in health through the flowering period in such soils. Next in importance to soil is perfect drainage; anything approaching stagnation at the roots is fatal to this class of plants. We have found 6-in. pots the best, placing about twelve bulbs in a pot with a dash of sand over them, and then covering them with $\frac{1}{2}$ in. of soil. After potting plunge them in ashes or Cocoa fibre in a cold frame. Very little water will be required for the first month after starting them, provided the plunging material is kept moist. As soon as the growths appear air must be given abundantly night and day whenever the thermometer is above the freezing point, otherwise they will soon run up spindly and be worthless. About the end of November they should be removed to a position close to the glass in a cool, airy house, and be carefully watched in order to see that they do not suffer from excessive dryness at the root after being removed from the plunging material. In this position they may remain with advantage till the beginning of March, when a house with a north aspect will be found the best, or they may be taken back to frames, in which they will flower freely, every pot throwing up from a score to three dozen spikes of bloom. After flowering, water should be gradually withheld, and the plants exposed to the full sun in order to ensure the bulbs getting well ripened, when they will prove serviceable the following season, and bloom equally well as imported bulbs.

Gunnersbury Park.

J. ROBERTS.

THE FERNERY AT PENDELL COURT, BLETCHINGLEY.

THE recently constructed Fernery in Sir George Macleay's beautiful garden at Pendell Court is an excellent illustration of the manner in which a plant house should be arranged in the natural style, so as to produce a picturesque effect, and also display to the best advantage the beauty of exotic vegetation. It forms a striking contrast to the uniformity generally observed in conservatories, with the ordinary stages and benches covered with an array of pots, which, moreover, restrict the growth of the plants, so that their natural development is seldom attained. In this Fernery there is not a straight wall nor a level path, and nothing of an artificial structure except the roof, and the rafters of that are covered with Mossy growth, so as to afford as much as possible the appearance of a natural scene. The rocks with which the walls, banks, and mounds are constructed are tastefully arranged with studied effect, and no meaningless ups and downs which too often characterise a rockery are here observable. The mounds present a bold and rugged outline, around which wind the gracefully tortuous and undulating paths. By a skilful arrangement the light is subdued in some portions, so as to give the recesses the appearance of having greater depth than they really possess, and the illusion is very successful. A wonderful variety of plants is employed with which to embellish it, and all seem to succeed admirably under the treatment. At the time of our visit the walls were gay with flowering plants of *Gloxinia*, *Achimenes*, *Chirita sinensis*, and other Gesneraceous plants, the bright hues of which quite enlivened the sombre tints of the Ferns, Lycopods, &c. Numerous Tree Ferns judiciously disposed give an aspect of grandeur to the house, whilst on their stems twine such plants as the elegant *Selaginella lavigata*, the fronds of which shine with a metallic lustre, quite unlike the majority of the other kinds. Orchids such as the beautiful *Cattleya citrina*, with its strange habit of growing downwards, are also quite at home fastened to the trunks of the Ferns. The huge stemless *Marattias*, *Angiopteris*, &c., spread their broad fronds over the smaller denizens of this miniature forest, and the Stag's-horn Ferns, Saw Ferns, Spleenworts, Maidenheads, &c., thrive with equal vigour. The Bird's-nest Fern is very effective with its broad, bright, green, erect fronds, under the shade of which, and in various other snug nooks, nestle the beautiful Filmy Ferns, such as *Todeas*, *Hymenophyllums*, *Trichomanes*, &c. *Amorphophallus Rivieri* and various other Aroids luxuriate capitably, as do also large numbers of Bromeliads, of which several were very brilliant, with their clusters of coral-like berries. *Gleichenias*, *Davallias*, and other elegant Ferns hang gracefully over the ledges of the rocks, and, intermixed with other plants, have a charming effect. One recess is devoted mainly to a

collection of indigenous Ferns, and though they do not possess such a tropical aspect as the stove and greenhouse kinds, they yet form a pleasing feature. Near to these was a plant of the hardy *Anthericum comosum* with variegated leaves, which harmonise well with the Ferns. The system of planting out is extensively practised in this garden, and it is evident that it is most conducive to luxuriant growth and profuse flowering, as the fine examples that have been shown from this garden bear ample proof. W. G.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Propagation of Lapagerias.—"J. S. W.'s." avowal that he only wrote that which he was told about the *Lapagerias* at the Handsworth Nurseries does little towards clearing up the doubts which I expressed about the age of the plants described as having ten or more shoots each. I did not for a moment doubt the truth of what "J. S. W." stated respecting their size, but I do not believe that plants raised from eyes last autumn twelve-months, as reported, have now the number of shoots named. In this there appears to be some mistake; plants which have attained the size described (that is, the number of shoots) are in all probability not less than double the age named. They would indeed have done well if they had made as much progress in five years as that stated. When "J. S. W." wrote so confidently about *Lapagerias* being propagated as freely as Vines from eyes, I naturally supposed he meant what he expressed. He now says he did not mean eyes, but layers. But how can "J. S. W." reconcile these two statements? Vines are propagated from eyes, not from layers, except under very exceptional circumstances. The two—Vines and *Lapagerias*—are so different in character, both as to propagation and growth, that I do not see how any one acquainted with them can make a comparison between them. "J. S. W." asks why I gave directions not long since in "Gardening for the Week" for the management of plants from cuttings, "when, according to my own showing, I had proved the superior advantages of the layering system thirty years ago." Any one who refers to p. 166 (Feb. 22, this year) will see what I there said in reference to *Lapagerias*, and may judge for themselves whether I said anything in favour of propagating them from cuttings. I simply referred to what their after treatment should be, whether raised from layers or cuttings.—T. BAINES.

Mackaya bella.—This fine South African shrub, of which a coloured illustration was given in THE GARDEN (p. 150), is grown very successfully at Pendell Court, by Mr. Green, gardener to Sir G. Macleay, to whom we are indebted for the specimen from which our plate was prepared. The plant from which the spray was taken is over 6 ft. high and 4 ft. through, and forms an erect growing bushy shrub. It is planted out with other plants in a moderately warm greenhouse, in a well-drained border. The soil used is rich loam, with the addition of leaf-mould and well rotted manure. It is liberally supplied with water during the summer months, but water is almost entirely withheld in autumn and winter. By this means the growth made during summer is well ripened, with, of course, the aid of plenty of sunlight. In spring the plant is a mass of bloom, and the flowers, which are borne in long racemes, continue in beauty for a considerable time. Just before the flower buds appear it is necessary to give the soil a thorough watering, and the temperature of the house should range from 55° to 60°. After flowering the shoots are cut back moderately hard, and after that the summer treatment begins. Thus, by intelligent culture, one of the most beautiful shrubs, which has hitherto been considered a shy bloomer, is rendered one of the most desirable plants grown in warm greenhouses.—W. G.

Odontoglossums in America.—In reference to the remarks made by "C." (p. 79) on the treatment of *Odontoglossums*, I think the following remarks will go far to prove that it is by no means necessary to keep *Odontoglossums* so cold as is usually recommended. Here in America, where the outside temperature often exceeds 100° in the shade and 80° at night, one would be inclined to think that growing cool Orchids in America would be an impossibility; but, notwithstanding this, they do grow and flower freely, making good stout bulbs and shorter and more robust foliage than in England, doubtless owing to the abundance of air afforded them both day and night. The plants are removed about May to a cool house, which is half-span roofed with a north aspect, and here, by raising the shading about 1 ft. from the glass, giving abundance of air, and constant syringing both overhead and amongst the pots, we manage to keep the house about 7° colder than the outside temperature. Such species as *O. Alexandræ*, *O. vexillarium*, *O. Andersonianum*, *O. niveum*, *O. maculatum*, *O. cirrhosum*, &c., usually make two sets of flowering bulbs every year, and we have two instances this year of *O. Alexandræ* and *O. Andersonianum* making a third

bulb, and in each case the bulbs have greatly increased in size. *O. Londesboroughianum* thrives with us in the Cattleya house, where the temperature sometimes reaches 110°, and where no shading, except a slight coat of paint, is used. *O. grande*, *O. Inseleyi*, and *O. Schlieperianum* succeed better with little or no shading and a drier atmosphere. All of them are wintered in a temperature from 50° to 55°, and to those not growing only sufficient water is given to keep the bulbs from shrivelling; but abundance is sprinkled about the paths, otherwise the atmosphere would be unbearable owing to the brisk firing necessarily resorted to. From experience I think *Odontoglossums* are kept too cold and wet in England, though I admit that they are grown and flowered exceedingly well in many places; but there are large plants here imported from England on which may now be found American and English-made bulbs, and it may be seen at a glance that those made in the higher temperature are certainly larger and more robust. I can scarcely recommend planting them out, though *O. grande* has been planted out here in numbers in a rich open border and it succeeded admirably.—F. GOLDRING, Albany, N. Y.

Acacia Riceana and its Treatment.—This fine plant has often been referred to in horticultural papers, and it deserves all that can be said in its favour, though it is somewhat strange that it should only have come in for notice within recent years, seeing that it has been such a long time in cultivation. In some few places plants of it of the size of trees are to be found, but such specimens are few. I am told, by those who are acquainted with it in its native country, that it is procumbent in habit, and covers the ground with its trailing shoots as with a network, and that it is much detested by travellers on horseback, as it entangles the horse's feet at every step, rendering travelling laborious and difficult. The habit of the plant makes it very accommodating in the matter of training, and a very fine conservatory specimen may be made of it. It is usually trained to the rafters, and very well its long pendent sprays look drooping from the roof; but it may also be trained as a standard in lofty conservatories, and if the branches are allowed to droop naturally in masses, the plant assumes a columnar shape, and looks more like a fountain of flower than anything else to which it can be compared. If desirable, it may also be trained in a formal shape. To give the plant bulk sooner, the branches may, indeed, be supported on hoops; but as it gets older such supports will not be required. A seedling plant should be planted in good soil, and the central limb trained to a straight stake till the desired height, and all side shoots should be allowed to fall into their natural position. In two or three years a plant so treated will form a very striking object when in flower. It need hardly be said that it should have a light and favourable position, in order that the shoots may flower freely. This *Acacia* may also be used effectively for draping walls. For such a purpose the leading limb need only be trained along the top of the wall, and in a year or two the drooping shoots will cover the wall from top to bottom. Glass screens and partitions may also be furnished in the same way. Of course, for such positions, the tree should be planted out in the bed, or in a brick compartment prepared for it, and filled with good sound loam chiefly, and well drained. Such plants do little good in pots. When planted out, growth is much more rapid; and *Acacia Riceana* is just such a plant as should be allowed to develop itself as freely and rapidly as possible, as, apart from its ornamental appearance, it is useful for cutting, and the long sprays are valuable for inserting in places where drooping subjects are suitable, and do just as well as plants grown for the purpose; the body of the vase being filled with something else.—J. S. W.

Frankincense.—The common Frankincense of commerce, also known as Gum Thus, is a resin which exudes from fissures in the bark of the Norway Spruce—*Abies excelsa*. When melted in hot water and strained, it constitutes Burgundy pitch. The turpentine obtained by making incisions in the trunk of a species of our southern Pines—*Pinus australis*—when old and hard, is also often called by that name; though commercially known as "scrape." The true Frankincense of the ancients, however, is the fragrant gum resin known in medicine as *Olibanum*, the product of certain species of trees of the genus *Boswellia*, which grow among the mountains of Central India, upon the Coromandel coast, and also in the interior of Arabia.—*Rural New Yorker*.

Mr. J. R. West, late assistant forester at Longleat, has been appointed forester at Fonthill Gifford, Wilts, the property of Sir Michael Shaw Stewart.—Mr. William Nichol, who has for upwards of twelve years been gardener at Drinkstone Park, near Bury St. Edmunds, has been appointed agent on Lady Gage's Hengrave estate, also near Bury St. Edmunds.—Mr. George Palmer, gardener to Col. Tremayne, of Carclew, Perranar-Worthal, Cornwall, has been appointed gardener to T. H. Powell, Esq., of Drinkstone Park.

THE KITCHEN GARDEN.

ASPARAGUS CULTURE.

(Continued from p. 225.)

Unearthing.—This is the term given by the Argenteuil growers to the operation which consists in taking out the soil from the bottom of the hollows or trenches in which the Asparagus stools are planted and throwing it upon the mound from which it was taken. When first a plantation is made the intermediate mounds have a pretty rapid slope, that is to say, they form an angle of 45° with the perpendicular. It is plain, therefore, that the soil forming their sides will gradually tend to fill up the intervening hollows, either from the action of the rain or from the constant weeding with or without the use of the hoe. Commencing with the autumn immediately following the first planting we must begin to unearth, that is to say, to clear out of the trenches the soil which has fallen into them from the sides of the mounds, and also remove from above the stools a portion of that with which they were covered at the time they were planted, say to the depth of $1\frac{1}{2}$ in. or so, so that the action of the frost may open the soil and that the rain may penetrate and improve it, also that during the first fine days of spring the sun may warm the surface of the soil and penetrate as far as the stool. Under the old-fashioned system the contrary operation took place. The trenches were filled with manure and stable litter for fear that the action of the frost should kill the plants. This is an error which has luckily long been exploded. The Asparagus will never freeze as long as the stool is covered with a layer of soil of $1\frac{1}{4}$ in. to $1\frac{3}{4}$ in. in depth.

Earthing up the Mounds.—Earthing-up operations should be commenced at the beginning of March. This operation consists in taking out the soil which was thrown into the trenches at the end of the preceding autumn and restoring it to the sides of the mounds. Some growers divide this operation into two parts, one being performed in March and the other in April, so as not to interfere with the warming up of the earth by the solar rays, for when it is completed at one operation the heat penetrates the soil with much less rapidity and the growth of the plants is much retarded. A layer of fresh soil $\frac{1}{2}$ in. thick is also thrown into the trenches, so that the roots may be covered to a total depth of from 3 in. to $3\frac{1}{2}$ in. Treated in this way Asparagus will stand the drought of summer without harm. For earthing up the large flat or the narrow hoe is used.

Formation of the lesser Mounds over the Stools.

—The formation of the lesser mounds covering the stools should be begun about the 25th of March in the climate of Paris, but in warmer localities about twelve or fifteen days before the first young heads begin to make their appearance. These lower mounds will vary in height according to the age of the plantation. The following measurements may be taken as being pretty near the mark: At three years from the first crop, from 5 in. to 6 in.; at four years, from 6 in. to 7 in.; at five years, from 7 in. to 8 in.; at six years, and for all the following years, from 8 in. to 9 in. These differences in the heights of the lower mounds are dependent on the size of the stool. The stronger the stool the greater the depth of earth above it that it will support, seeing that the larger and stronger the heads the more easily can they penetrate the superincumbent soil, whilst a young and comparatively weak shoot will become sickly during the process of slowly pushing itself through, besides which, it will most likely become so deformed as to be unfit for market. By properly earthing up we may obtain heads of the following lengths: third year, 9 in.; fifth year, 10 in.; sixth year, 11 in.; and all the other years from 11 in. to 12 in. For making the lesser

mounds we use the narrow or broad hoe, taking care to use fine open mould which has been well exposed to the atmosphere, so that the young heads may push through it easily. If it contains any stones they must be carefully sifted out and not allowed to remain in the plantation, for reasons already stated. We must also be careful not to allow any manure to remain in these lesser mounds. In order to gain an exact notion of the way in which these lesser mounds are formed, we have only to glance at fig. 6, where we have the section of an Asparagus plantation before these lower mounds have been formed. The stools are at the bottom of the hollows T T, and the upper mounds A A are at their greatest height, whilst after the operation of earthing up the lesser mounds has taken place, the aspect of the ground becomes completely

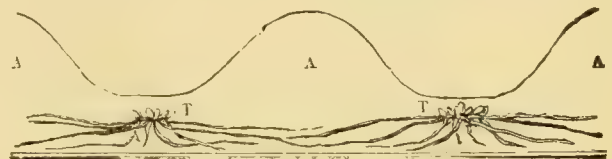


Fig. 6.—Asparagus trenches before earthing up.

changed, as seen in fig 7. The mounds A A (fig. 6) are lowered, their tops c c c being completely carried away, as shown in fig. 7, in order to fill up the trenches and form the lower mounds B B, covering up the Asparagus stools T T (fig. 7). It must be perfectly understood that the lesser mounds which earth up the stools are not continuous ridges like the upper ones A A (figs. 6 and 7), but form little isolated conical hillocks, like mole-hills, the centre of each being over the centre of each Asparagus stool. Consequently, B B (fig. 7) represents a series of separate mounds and not a continuous ridge running from one end of the trench to the other. Some cultivators recommend that these lower mounds should be made isolated one year and in the form of a continuous ridge the next. There is, however, no advantage in this; on the contrary, we think that there is a double inconvenience involved in this method, for not only is the labour of cultivation rendered much more difficult and irregular, but the stools do not gain so much benefit from the rain. It happens frequently that during the gathering in of the crop heavy rains set in, followed by great drought. In this case the mounds become excessively hard, and the heads find the greatest difficulty in penetrating the thick crust of their prison. Now is the time to use the three-pronged fork and stir up the earth



Fig. 7.—Asparagus trenches after earthing up.

to the depth of from 1 to $1\frac{1}{2}$ in. only, so as not to injure the young heads, which are just beginning to push their way through. Three such forkings are sufficient for each mound.

Gathering the Crop, Keeping, Packing for Market, and Transport.—The Asparagus cutter must know his business, otherwise he will do more harm than good by injuring the stools. In former times Asparagus cutters used a long knife curved at the point, the cutting edge of which was toothed like a saw or nicked like a scythe. This erroneous method has long since been abandoned, and the crop is gathered as follows: We must first of all clear away the soil which surrounds the head we are going to gather, either with

the fingers or else with the point of the knife used for cutting it. The knife is then thrust down so as almost to reach the root, taking care not to cut or bruise the neighbouring heads which have not yet pierced the soil. The head is seized between the knife and the thumb as near the root as possible, by pressing the blade of the knife firmly against its base, taking care not to bend or bruise the head in the middle. The head, being held firmly between the knife and the thumb, is gently pulled or twisted out and removed, the hole left by it is filled with soil by means of the cutting knife or the fingers, and the operation is finished. Care must be taken not to cut the head with the knife, which is only used as a lever and not as a cutting instrument. In order that Asparagus may be gathered in this manner, it must be grown on the Argenteuil system, otherwise the heads being hard and woody it will be found impossible to detach them easily from the parent stool. Where this method is carried out carefully it has a great advantage over the old-fashioned system of cutting with a saw-bladed knife, and we strongly recommend all growers to practise it. It is somewhat slower, it is true, but it has the great advantage of not wounding the heads surrounding those which are pulled up, as well as of separating the useless stump of each head from the stool, instead of allowing it to wither and rot. For this purpose we have invented a special instrument in the form of a large, flat, shallow spoon, which is very easy to use. The best time for gathering Asparagus is when it shows some 1½ in. to 2 in. above the ground. If it is gathered sooner than this there is a loss, in consequence of the heads not being sufficiently mature. If we defer it until later, the heads lose their proper flavour and hue, and become bitter in taste and green in colour; besides which it is only eatable throughout a portion of its length.

Keeping.—If we cannot use the gathered Asparagus at once, it must be carefully moved into a cellar specially devoted to the purpose. It must not be either washed or damped, and must be spread on the ground in the coolest and darkest part of the cellar out of reach of the light. Asparagus may be kept in this way for nearly a week, but it loses part of its flavour, becomes harder, and does not cook so well. If the crop is intended for market, it must be tied up into bundles, the size of which is regulated by the locality to which they are intended to be sent. At Argenteuil the bundles are generally from 6½ in. to 7½ in. in diameter in the middle, and from 4½ in. to 5½ in. in diameter at the head. To make the heads up into bundles, a small bench is used, to which is fixed at right angles a piece of board containing a hole of from 4½ in. to 5½ in. in diameter, and 1½ in. deep, the hole being backed by another piece of board firmly screwed on. About 10 in. in front of this piece of board is another upright piece fixed parallel to it, and provided with a U-shaped hole. This upright piece slides backwards and forwards in a groove and may be fixed at any distance from the first upright piece by means of a thumb-screw. One of the sides of the U is hinged, so as to allow the workman to remove the bundle. The workman sits in front of the bundling bench, and turning it with the hole away from him and the U nearest to him, he chooses the best heads of Asparagus from a heap by his side, and places them in the U, allowing their tips to rest lightly in the stopped hole. If the Asparagus is flat he places it in such a way that the largest part is on the outside of the bundle. The medium-sized and smaller heads are placed in the centre. The heads are so adjusted in the hole that they are quite level. When the bundle is large enough a strip of Willow is passed round it about 4 in. from the top, and firmly tied, but, of course, without bruising the heads. Another strip of Willow is tied round the bundle about 4 in.

from the lower end. Any of the heads whose lower extremities project too far beyond the bottom of the bundle are cut off level, and the operation is finished. Crooked heads may, with care and gentleness, be bent perfectly straight. If they break during the operation the two pieces may be united by inserting a sliver of wood into one of the broken ends and then sticking it into the other. When the whole of the gathering has been made up into bundles, they are placed upright in tubs or tanks of water, which must completely cover them. They are left in this condition for several hours and are then washed with a long-haired brush, which is passed gently over them backwards and forwards. They are then drained for ten minutes or so and are ready to be sent to market.

Packing and Carriage.—Asparagus is sent to market in large, strongly-made baskets, which contain twenty or thirty bundles and even more. The bottom of the basket is lined with hay or straw as well as the sides, after which the Asparagus bundles are put in rows and pressed together sideways pretty firmly, so that they cannot shake about. A layer of straw is now placed, and another layer of Asparagus, and so on till the basket is nearly full, a thicker layer of hay or straw being placed on the top of all. Great care must be taken not to stint the amount of hay or straw used in lining the top, bottom, and sides of the basket, otherwise the tips of the heads will be knocked off and the Asparagus rendered unsaleable. The Asparagus grower who seeks to do a good trade must exercise great taste and judgment in preparing his merchandise for market. The first thing to be done is to place the largest and best looking heads on the outside of the bundle. Towards the end of the season, however, Early Asparagus becomes rather small; we must therefore have at hand a certain quantity of large heads of Late Asparagus, so as to be able to "dress" the bundles in a proper manner. The Asparagus grower, therefore, will do well to plant say a quarter or even a third of his ground with the large variety of Late Asparagus, for a few large heads placed in a bundle of small ones will often make it sell for double the amount which it would otherwise have fetched. GODEFROY-LEBEUF.

IMPROVED CABBAGES.

COMPLETE and comprehensive as is the article on garden and field Cabbages given in your number for August 16, there is yet one point to which little attention has been directed, I mean their culture. Cabbages, I fear, rank so low in the scale of vegetable productions with gardeners now-a-days that they never trouble themselves to enquire how or by whom any improvement in them is made. It may seem invidious to mention it, but I believe that the greatest improvement in the early Cabbages grown at the present day is due to cottagers who have taken pains to overcome their tendency to run to seed in spring instead of forming good-sized hearts. It is a well known fact to all who grow Cabbages that early and forward plants, or those that have attained the largest size during the autumn and winter, are the most likely to run to seed in the spring; hence the advisability of not sowing the seed too early in the preceding summer. For many years the period of sowing the main crop of spring Cabbages has been an important one with all cultivators, for if sown too early the crop is almost sure to run to seed in spring, and if too late, it is hopeless to look for very early Cabbages; and in order to aid in overcoming this difficulty it has been the aim of those who have endeavoured to improve the varieties of Cabbages to produce kinds which have the least tendency to run to seed in spring, and at the same time pass through the winter, be it ever so severe, of a good size.

Now this qualification in a Cabbage is not possessed by all the varieties that are offered by dealers, and a knowledge of the kind possessing this qualification is the point that determines good cultivation from the ordinary hap-hazard system with which so many are contented, amongst those who look with a certain amount of contempt on the Cabbage grower. Now, it must be confessed that the Cabbage has been much improved during the lifetime of the present race of growers. I can remember the time when it was not thought

proper in any part of England where I resided (and I have done so in half-a-dozen counties, and these often widely apart) to sow the main crop of spring Cabbages before the 12th of August, and I believe I am right in saying that the earlier class of growers did not sow them so early as even that. Abercrombie, I think, lays it down as a maxim that the 21st of August is the proper time. Now, thanks to those who have improved the Cabbage so much, the best varieties may be sown with safety a month before that time, and for the last thirty years or more I have been in the habit of sowing the first batch of spring Cabbages on or before the 20th of July. The variety I first had from a cottager, and it was but rarely that any of them run to seed in the spring; even last year, 1878, I sowed the same kind on July 15, along with two more varieties; in planting they accidentally got mixed, and I found this spring that only three or four out of about three hundred ran to seed, and whether these were of the original kind or of the others I could not tell; but I believe the cottager's old kind is the nearest proof against bolting, and consequently from it it is difficult to get seed; I, therefore, always go back to my old friend for a supply of seed, rather than trust to names of the highest repute. I cannot give the name of the variety as it is purely local, but I believe that it originally had a beginning in a market garden, where it may possibly be still grown. Its adaptability to stand the winter when of large size is a property that I have always admired in this Cabbage. The cultivation of the Cabbage has always been with me a favourite pursuit; a good bed of Cabbage affords us something to cut from almost every day in the year; but when I see it recommended to sow the main crop of early spring Cabbages as late as the end of August, I confess I have yet to learn how to get them fit for use early the following spring.

AN OLD GARDENER.

Potato Disease in North Hants.—Potatoes are very bad in this neighbourhood. I have grown several sorts this year, but none of them are exempt from disease. The first that showed it was Extra Early Vermont. This was on July 15th; then came Early Rose, Porter's Excelsior, Snowflake, Schoolmaster, Red Emperor, Myatt's Prolific, Paterson's Victoria, Grampian, Old Ashleaf, and Magnum Bonum. The last did not become affected till August 13th. The worst I have as yet lifted is Red Emperor; out of six pecks I only got a quarter of a peck of good tubers. Poor sandy land has the best of it this season, also those sorts that were planted early. Since the beginning of the year up to the end of August we have had over 30 in. of rain.—J. CROOK.

French Breakfast Radishes.—After a long, trying winter like the past, when all kinds of green vegetables get scarce in spring, especially salading of most kinds, the utility of a good quick-growing Radish becomes apparent. After trying various sorts, I find none so useful and quick, as regards growth, as the French Breakfast. I made my first sowing of it in the open air in the end of February on a warm, south border. Three sorts were sown side by side, and from the French Breakfast I could draw good Radishes a week before either of the other sorts. This is a decided advantage. Another recommendation belonging to this variety is its ornamental appearance. I suppose one of the reasons why it is not more grown than it is, is its being a little dearer than some sorts.—J. C., *Farnboro*.

Tomatoes in the Open Air and under Glass.—The only chance of ripening a crop of Tomatoes in the open air this season is to keep the growth very thin and have all lateral and side shoots pinched back as soon as the requisite number of flowers are set for a crop. This will concentrate the whole strength into the swelling fruit and hasten their maturity, and it is better to have a small crop ripened well and quickly than, by permitting a greater development, to retard the whole. The main leaves should be left on for the present; by and by, when the fruits are ripening, the foliage may be thinned to let in the sunshine to give flavour and colour. But the time will—in fact, is—come when every establishment of any pretensions should have a Tomato house. They are more thought of now in many establishments than Cucumbers, and they are far more wholesome. But though a house for their special culture will be a necessity in a complete establishment, yet wherever there is a greenhouse Tomatoes may be had, for they will grow in pots, boxes, or in any simple contrivance where a peck of good soil can be laid; and they may also be utilised for covering the back walls of forcing houses. The best results, though, will be obtained in a light warm position, and if used to cover back walls it is best to plant in pots in rather poor soil, and feed with liquid manure when the fruits are set and the plants require more support. Last season there was a good deal of disease amongst Tomatoes in the open air, but this year up to the present time, although the plants are late, they are very clean and healthy in this neighbourhood.—E. H.

GARDEN DESTROYERS.

THE CABBAGE MOTH.

(*HADENA BRASSICÆ*.)

THERE are perhaps no insects which are so destructive in kitchen gardens as the caterpillars of this moth, and the flower gardens are by no means free from their intrusions. They appear to be almost omnivorous, as no plants seem to come amiss to them—Cabbages of all kinds, particularly Cauliflowers, the leaves of Turnips, Lettuces, Currant bushes, &c., and even the leaves of the Tobacco plant and scarlet Geranium. Mr. Curtis states that "he knows of no caterpillar which is a more general feeder." This insect is so very common that the amount of damage it occasions every year is very considerable, and gardeners who are not troubled with this pest are indeed fortunate. The caterpillars are not content with eating the outside leaves of Cabbages and Lettuces, but make their way into the very hearts of the plants, where they are tolerably safe from anything which we can do to molest them; still many may be collected by carefully searching the plants. If the heart of a plant is found to be attacked, it may as well be cut open at once and the caterpillars destroyed, for if left they will most certainly render it useless for food even if they do not actually kill it. As these caterpillars generally feed at night time, and when nearly full grown sometimes remain hidden under clods of earth, stone, &c., during the day, they are more likely to be found after dark if searched for with a lantern. Several methods are recommended by various writers for the destruc-



Hadena brassicæ.

Caterpillar of *Hadena brassicæ*.

tion of this insect, but I can scarcely think they can be of much use if the caterpillars are well hidden among the leaves, as I fear no fluid or powder would reach them there. Sprinkling lime over the plants and watering them lightly overhead a few hours afterwards, or watering with soap and water, is said to be very efficacious. Sowing the refuse of beaten hemp broadcast over the plants is said to cause the caterpillars to fall down dead within half-an-hour. The same writer suggests planting Hemp near Cabbages, or watering them overhead with an infusion of Hemp; another states that covering Cabbages with fronds of the common Brake Fern, or Elder leaves was very effectual; an hour after the leaves were placed in position not a caterpillar was to be seen. This insect is very common, and may be found in all parts of this country, and on the Continent as well, wherever Cabbages, &c., are cultivated. The moths only fly after dark, and may be found during the day resting on the stems of trees, on hedges, &c.; they are of such an inconspicuous colour that under ordinary circumstances it is not worth while to search for them with a view to their destruction. They make their first appearance in May or June, and those of the second generation may generally be found in August. They lay their eggs on the leaves of Cabbages and other plants, from which the caterpillars are soon hatched, and may be found during July, August, and September. They at once begin feeding on the leaves where they were hatched, and then eat their way into the very heart of the plant. They are extremely voracious, and two or three of them soon demolish a Cabbage or Cauliflower, and what they do not eat they spoil by their droppings.

Plants often do not in any way show signs of their presence, and they are not discovered until the plant is cut open and found to be worthless. They do not attain their full size for about a month, during which period they increase very rapidly in size and change their skins several times. Soon after they are fully grown they generally bury themselves in the earth and become chrysalides, frequently surrounding themselves with a rough shell of earth. Sometimes, however, they undergo their metamorphosis on the surface of the ground. The moths from these chrysalides emerge in August, and, after pairing, at once lay their eggs, the caterpillars from which bury themselves in the earth towards the end of autumn, covering themselves with a case of hardened earth in which they pass the winter; some changing at once into chrysalides, others not undergoing their change until the spring. When the beds in the kitchen garden are being prepared a sharp look-out should be kept for these chrysalides, which should always be destroyed. The Cabbage moth belongs to the family Noctuidæ and the genus *Hadenæ*; by several authors it is, however, described under the name of *Mamestra brassicæ*. In THE GARDEN for the 14th of December, 1878, I have given an account and description of another member of this genus, *H. oleraceæ*, the pot herb moth, which much resembles the Cabbage moth; they may, however, easily be distinguished by comparing the descriptions together. The Cabbage moth is about $\frac{3}{4}$ in. long, and measures about $1\frac{1}{2}$ in. across the wings when extended. The general colour of the moth is brown of various shades, the head is small, the antennæ long and fine; the thorax is greyish-brown, with a tuft on either side, on which is a dark brown mark; the body is brownish. The upper wings are greyish-brown, with several darker wavy, narrow, transverse bands and lines; the upper margin bears several darker and lighter spots; near this margin and on the side of the centre nearer the tip of the wing is a somewhat ear-shaped lighter spot (parts of which are quite white) surrounded by a dark line; rather nearer the base than this spot is an almost round light spot; immediately below this is a squarish spot bordered on three sides by a thick dark line. Near the outer edge of the wing is a whitish zig-zag line, on the basal side of which is a lightish, clouded band. The lower wings are whitish-brown, and are somewhat darker towards the lower edge, the fringe of which is nearly white. The caterpillars when fully grown are about $1\frac{1}{2}$ in. long; when young they are generally green in colour, but afterwards they vary very much from greenish to nearly black with pinkish markings. Just above the feet is a yellowish longitudinal band. Each joint is marked with a rather oblique black line on either side of the centre of the back. The head is reddish, and the feet, which are placed on the first three, the sixth, seventh, eighth, ninth, and last joints, are greenish. The chrysalis is about 4-10ths of an inch long, and of a bright yellowish-red colour. G. S. S.

ANSWERS TO CORRESPONDENTS.

Hypnum Moss.—What kind of Moss is this? and where is it to be procured?—M. S. (Hypnum Moss, also known as Feather Moss, is the commonest of our native Mosses; indeed, it would be difficult to find any garden lawn or grassy bank without this Moss in some of its forms. It has creeping prostrate or ascending branched stems, clothed with minute scaly leaves, which are arranged spirally, and set so thickly as to overlap each other, like the leaves of a Juniper or an Arbor Vitæ. It grows most during cold and wet seasons, and is in its best condition in winter and early spring. The kinds most common on grass lawns are the Spreading Feather Moss (*H. squarrosum*), Amber Feather Moss (*H. purum*), and the Cypress Feather Moss (*H. cupressiforme*). In order to obtain large flakes of this Moss, it must be sought for in woods, copses, and on moist banks, where the above mentioned kinds and the Long Feather Moss (*H. prælongum*), the Velvety Feather Moss (*H. velutinum*), the Silky Feather Moss (*H. sericeum*), and the Tamarisk Feather Moss (*H. tamariscinum*) may frequently be found associated together. The Moss sold by the florists in small square bundles, dyed an unnatural green, is the Three-edged Feather Moss (*H. triquetrum*).—C. M.]

Olea fragrans.—Is this hardly enough to plant out of doors? We are about sixteen miles south of London, on the borders of Kent and Surrey, and about 600 feet above sea level.—M. G. [If your position is so favoured as to slope to the south or west, you may venture to plant *Olea fragrans* in an open situation, as it has proved sufficiently hardy to stand out unprotected for the last six winters, and withstood the unusual severity of last winter uninjured as a wall shrub near London; but if no protection can be afforded to ward off north or east winds, you will only succeed by treating it as a wall shrub. It should have grown for a considerable time in a cool temperature, and it ought to be no less than from five to six years old, and about from 3 ft. to 4 ft. high. The soil should be a light loam, with a dry sub-soil. The altitude named is rather favourable than otherwise.—C. M.]

Diseased Ferns.—*Anon.*—The premature decay of the frond of your Fern is owing to a diseased state of the roots, probably arising from overpotting or being kept too wet. The mouldiness on the ends of the fronds may be caused partly by the condition of the plant, and partly by a stagnant atmosphere. In order to revive it, place it in a light airy situation, and keep it moderately dry for a time. It is a stove Fern, and requires a temperature of from 65 to 70.—C. M.

Plants for Winter Bedding.—Can any one tell me the best plants for bedding out in winter, so as to have a gay winter garden where a summer garden is seldom or never required? The aspect is south but rather exposed, in the county Meath, Ireland.—E. C. H. [For effective winter bedding no plants are so

suitable as small shrubs, and the variety of these available for the purpose has of late become so great that as bright a flower garden in winter as summer is only a financial matter. The plants in the following list all bear the yearly double removal—that is incidental to such winter bedding—well, viz., *Aucuba japonica*, *Aralia Sieboldi*, *Azara microphylla*, *Cotoneaster microphylla*, all the variegated *Eucynuses*, *Erica herbacea carnea*, *Erica mediterranea alba*, variegated *Ivies*, especially as groundwork for formal growing shrubs such as *Juniperus*, *Cupressus Lawsoniana erecta*, and *Thuja aurea*. *Retinospora aurea*, *R. obtusa aurea*, *R. plumosa*, and *R. ericoides* are all of them effective winter bedders, as are also variegated *Hollies*, but they do not bear the constant removal well; they will, however, last good for three years. *Thujopsis borealis*, *Mahonia aquifolia*, *Pernettya mucronata*, *Andromeda floribunda*, and *Portugal Laurels* are all well suited for forming beds or masses. The following hardy carpeting and edging plants look well associated with shrubs, viz., *Ajuga reptans*, *Alyssum saxatile*, *Arabis lucida variegata*, *Antennaria tomentosa*, *Phlox aurea*, *Cerastium arvense*, *Sedum glaucum*, *Lythrum, corsicum*, and *acre elegans*, *Herniaria glabra*, *Thymus aureus variegatus*, and *Thymus lanuginosus*. This list might be extended, but the above named are the best, and sufficient for any ordinary-sized garden.—W. W. H.

Auricula Insects.—An insect has attacked the roots of my Auriculas this season. The body is white and fat; the legs six and black. When turned on its back a curious proboscis-like appendage runs down from the head as far as the junction of the third pair of legs with the body. Its length is about 1-16th of an inch. It deposits a quantity of white material round the roots and rootlets exactly like white mould. The effects of its attacks are only to be detected by the colour of the leaves, which turn yellowish-green. The remedy I have resorted to is as follows: I take the plants out of the pots, shake all the soil from the roots, wash thoroughly in water, dust the roots affected with powdered charcoal, and repot at once. What is the name of the insect? Is it a common pest of the Auricula? How can it be destroyed? What is the cause of its coming?—H. J. N. [1. Your Auriculas are attacked by one of the root-feeding aphides, probably *Forda myrmecaria*, which is often found feeding on the roots of various plants in pots, which it much injures by sucking the juices of their roots by the aid of its long proboscis or rostrum. 2. The plan you have adopted is very good. Try powdered Hellebore instead of charcoal, watering with decoctions of various leaves, such as Tobacco, Stramonium, Walnut, &c., or a solution of sulphate of Iron has been much recommended. 3. As to the reason of the insects' appearance, themselves or their eggs were probably in the soil in which the plants were placed, as the insects are apterous, and unlikely to move much about.—G. S. S.]

Diseased Cucumber.—*Anon.*—We can see no fungus on the piece of Cucumber sent. Fungi often appear on Cucumbers when the latter are out of health, but there is no reason for supposing that in these instances the fungi are the cause of the ill-health; they merely make bad worse.—W. G. S.

Seeds in Melons Germinating.—On cutting open a Melon the other day the seeds were found to have germinated, and to have produced small plants, with roots and two leaves quite expanded. The Melon itself was excellent in flavour, and of medium size.—R. ROBBINS, *Rhuddlugh Court, Upton on Severn*. [Cases of germination of this kind are not uncommon.]

Names of Plants.—*H. C.*—*Echinocactus Ottonis*, not rare. *H. Y.*—*Brugmansia* (*Datura*) *Knightii*. *S. J.*—1, *Symphandra pendula*; 2, *Rosa microphylla*. *E. D.*—*Wig-tree* (*Rhus Cotinus*). *R. S.*—1, *Stipa pennata*; 2, *Dactylis glomerata variegata*; 3, *Panicum Crus-galli*; 4, *Cinna mexicana*. *Stace.*—*Tacsonia insignis*. *T. M.*—*Alchemilla arvensis*. *Scottish.* Next week. *W. M. C.*—1, *Harpalum rigidum*; 2, *Coreopsis lanceolata*. *M. J.*—*Statice tatarica*. *Enquirer.*—1, *Rudbeckia* *Newmanni*; 2, *Cnicifraga racemosa*; 3, *Fringium amethystinum*. *A. B.*—1, *Adiantum Farleyense*; 2, *Asplenium bulbiferum*; 3, *Nephradium molle*; 4, *Pteris cretica*. *C. M. B.*—We cannot undertake to name florists' flowers, which can only be done correctly by a specialist.

Cucumbers.—*Major.*—Not the Cucumber disease. They are merely suffering from being overcrowded, and from want of heat and air. Shorten and thin out the shoots, and top dress; and if firing is recommended, and they are kept well watered, they may recover.

Questions.

New Budding Knife.—Would some of your readers who have tried it say how they have succeeded in their use of Ward & Garrard's Improved Budding Knife. Speaking for myself I cannot make it work at all satisfactorily.—W. E. LAYTON, *Cranbourne, Windsor*.

Permanent Hedge.—I have 400 ft. of ordinary "pale and space" fencing round two sides of my garden at Enfield, and as it shows signs of decay I thought of planting a permanent hedge to take its place as it becomes useless. Will any of your correspondents kindly inform me the best quick-growing sort of hedge to plant to form a close boundary to take the place of the paling, and so as not to occupy too much room? Also, whether it is necessary to have a bank or ditch, as either would, of course, take up room.—FRANÇOIS.

Grapes.—Would any of your correspondents be kind enough to state the heaviest average crop of good Grapes, that is, weight of fruit from each square yard of training surface, that they have known to be taken from the same Vines for, say ten years or longer in succession, the crops being regular and good throughout.—J. S. W.

OBITUARY.

Jesse Allgrove, for over fifty years a faithful servant to Messrs. Osborn & Sons, at their Sunbury nursery, died on August 17 in his eightieth year. He has for many years been manager of the nursery, and was actively employed as such until within a few months of his death. His upright character and the interest he always took in his business gained for him the esteem and respect of his employers and of all who knew him.

Frost in Ireland.—We have already indications of winter. The thermometer this morning (Sept. 1) registered 30°, or 2° of frost. Everything is very backward; no signs of Peaches, Apricots, Nectarines, or Figs ripening out-of-doors. Apples and Pears very small. Potatoes very bad, and still getting worse.—J. CLEWS, *Headfort Gardens, Kells, Co. Meath*.

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SATURDAY, SEPT. 20, 1879.

Vol. XVI.

"This is an art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE "CURL" OR BLIGHT IN PEACH TREES.

FEW fruits excel in flavour a well-ripened Peach that has been taken from a south wall. You may grow larger, heavier, and finer looking fruit under glass, but, for flavour, no house-grown fruit can compete with one ripened out of doors. I take this to be a well known fact, and yet I every now and then meet with people who are induced to grow Peaches only in houses or under a glass-fronted wall, having given up trying to grow them in the open air through frequent failures. No doubt late frosts have much to answer for. It is very vexing to see a wall covered with blossom and then to find that some late sharp frost has blighted all one's hopes of a crop. But that is not the only evil with which a Peach grower has to contend. He may get a good set and be looking with much reason for a heavy crop, when, in May, he will find the leaves of his trees thicken, appear blistered, then curl up, and, if he examine one, he will find it loaded with insects. Presently the leaves perish, the tree makes no healthy wood, and never recovers. Sometimes it lingers with a sickly hue for a time, but the best thing to be done with it is to remove it in the autumn, and replace it by another tree. This evil then is far worse than a late sharp frost. But what is the cause of this evil? Can anything be done to remedy it? On these points I shall be glad to know the experience of others and I will now state mine.

First let me notice the causes of the "curl." A cold, high wind will produce it. This is proved by the absence of this pest in a well-ordered orchard house. But such winds do not affect all trees alike; some seem more delicate in constitution than others. I have two trees in my garden close to each other, the Early Alfred and Bellegarde. They have been treated alike; but the Bellegarde this spring had about a dozen blistered leaves on it, whilst the other had none. Then, again, soil has a great deal to do with the prevalence of this pest. Gravelly soil seems to favour it. I have seen trees completely killed by it on gravelly soil. Heathy soil, on the other hand, does not suit the Peach. I am acquainted with a grower who built a long fine wall and covered it with Peaches and Nectarines; rollers and blinds were fixed, but all to little or no purpose. The curl beat him, and he had the trees removed. I have another friend, living in Kent, where the soil is most suitable for fruit growing, but he, too, is annoyed by curl and almost out of heart. I have no knowledge of the effect of heavy soil on the Peach; but chalky loam seems to suit it. I live in the South Downs, and my garden contains four Peach trees—the Noblesse, the Early Alfred, the Bellegarde, and Stump the World. The Noblesse was never a healthy tree, and up to this time it continues unsightly; but the other three are full of vigour, and not a curled leaf is to be found on them. I ascribe this in a great measure to the way in which they were planted, and in some measure to their general treatment. Let me therefore describe this. At a radius of about 4 ft. from the place where the tree was to be planted, a semi-circle was drawn, and within this the earth was removed to a depth of 3 ft. or so. Then a barrowful of earth from a field adjoining was brought, and with this, after it had been deposited in the hole, a small quantity of decayed manure was mixed. This was then rammed firm. Upon this another barrowful of the same kind of earth and manure was placed and rammed; and this process was continued until the level of the adjoining ground was nearly reached. On this the tree was planted and the roots well covered. In spring this space was covered with good-sized flint stones, in order that the roots might be protected from the sun's rays. The trees grew vigorously, and Stump the World was obliged to be root-pruned. My trees being without "curl" may be ascribed in a great measure to this method of planting. If I had not been on a chalk soil I should have added about a peck of chalk, or somewhat more of old mortar to the compost in which the trees were planted. In May, as I have said, about a dozen or so of blistered leaves appeared on the Galande or Bellegarde, but when they were removed no more appeared, and we have not again been troubled.

What is the best cure for "curl"? As soon as it appears wash or syringe the trees well with Tobacco-water. If only a few leaves seem blistered pick them off; and if the repeated doses of Tobacco-water do not cure the "curl," I know of no better mode of procedure than to pull off the diseased leaves. Possibly the second leaves may be healthy and the trees recover, but if not, replace them. It is bad policy, especially in a small garden, to retain a sickly tree of any kind.

A. S.

PRUNING AND TRAINING SMALL FRUIT BUSHES.

THE pruning of such bushes as Gooseberries and Currants, &c., is not a difficult matter, from a gardener's point of view; but there are some—many, I might say—who do not understand it. These are mostly amateurs, who perhaps keep an odd man about the place, who fills his time up in the garden, where he is aided by his employer in his leisure from business, neither perhaps knowing much of gardening, and particularly little about pruning. Not long since, I saw in a pretty and otherwise well managed little garden, belonging to an amateur, a quarter of Gooseberries that had been pruned by a pair of hedge shears. They were, as may be expected, completely choked up with wood to the heart, and bore no fruit. Both Red and Black Currants were mangled in the same way, and with the same results, and the owner was in trouble about his bushes. In another case the owner had been advised to thin out the young wood well, and he had followed that advice to the extent of cutting every shoot back close to the old wood, which of course resulted in a crop of spray also. No doubt plenty of such examples could be found. Writers are not, as a rule, explicit enough, and in this paper I propose to give a few simple instructions on the subject that I hope will be understood.

GOOSEBERRIES.—It should be understood that the Gooseberry bears its fruit upon the shoots formed the previous year chiefly, and upon spurs. These spurs, however, amateurs and cottages need not trouble themselves about, nor try to produce them by any method of pruning; they will take care of themselves. It is the annual shoots that grow every summer, and which have to be pruned during winter, that they have alone to contend with. These bear the greatest portion of the crop, and the finest berries. Thirty or forty berries to a shoot 1 ft. long or so is common on good healthy bushes that have been kept open by pruning. Supposing we have a young bush to begin with, with a stem about 6 in. or 9 in. long, and a head of two or three branches, the first thing to be done, when it is planted, is to see that no shoots or buds are left on the stem, as these give rise to suckers which become troublesome in after years. Such buds should therefore be rubbed off whenever they appear, and only such branches left as proceed from the head of the plant. In planting a clear neck should be left above the surface of the soil, the better to keep it in order. The first year the young bush will produce perhaps several growths from each of the previous year's shoots. During the summer these might be reduced by disbudding; but that plan is seldom resorted to, and we need not stay to speak of it here. As soon as the leaves are off the bushes, pruning should be performed. Gooseberries start early into growth, and thus pruning should consequently be done early in winter. The operator should first examine the bush, and then proceed to divest first one limb of a portion of its young growths, and then the next, and so on till he has gone over the bush. The two principal objects to be kept in view are, an even balance among the branches—which will ensure a round and well-shaped bush—and an open centre. He should leave those shoots only that point outwards, and he should not leave too many, but thin them out well—till in fact the bush looks a mere skeleton to what it was before it was pruned. In a young tree he will probably find it best to leave the terminal shoot; to cut out one or two next to that, and leave the third or fourth one behind, nearer the centre, but pointing outwards. What he does cut away should be cut cleanly and smoothly off at the point of origin—that is, close to the old wood. If the least morsel of a spur be left, it will probably produce a thicket of useless shoots the following season, and it is these which choke up the tree and spoil it. Careless pruning in this way is the ruin of Gooseberry bushes. What shoots are preserved should mostly be left entire, unless it be when a strong one needs to be shortened back to preserve the balance. Sometimes, too, the points of Gooseberry shoots get rather attenuated and crooked near their extremities, and such points should also be cut off. These abortive points are oftener caused by the use of nets than anything else, which lie upon the bushes and interrupt growth. To sum the matter up concisely, pruning a Gooseberry bush properly consists in cutting clean away at least two thirds of the annual shoots and leaving the remainder entire, or nearly so, and all pointing away from the centre of the tree, which should be open like a shallow basin. As the bushes grow old, and the branches cease to extend at their extremities, it will be found necessary to cut them back or remove them altogether, to make room for more vigorous shoots, that push from near their base and take their place. Frequently gross shoots will push from the centre of the bush; but these should all be rubbed or cut out right at the bottom, leaving no buds, unless it be found necessary to preserve such as may be conveniently placed to fill up a gap created by the death or removal of old branches, which sometimes happens in the case of old Gooseberry bushes.

RED CURRANTS.—These require nearly the same treatment as Gooseberries. The bushes may also be grown with a single stem; but they are more apt to form a stool of roots in the end, from

which suckers spring, and form branches if allowed to remain. In their case single stems are not so important, as the Currant can be more easily managed and pruned than the Gooseberry. The fruit is mostly borne on the young shoots of the previous year; at pruning time, therefore, these should be well trimmed, cutting what are removed clean away. The terminal shoot on the branch is always left, and two or three below it, just according to need. Some shorten the shoots back to the length of from 4 in. to 6 in. and some leave them entire. When they are very strong it is perhaps the best plan to shorten them a bit; but in any case we like to leave 8 in. or 9 in. of wood. Leaving too little of the shoot is apt to force a greater growth of wood than is desirable; whereas where a good bit is left a leader only pushes, and fruit is borne on the remaining portion. The racemes of fruit on the young shoots are, as a rule, finer than those from spurs; it is therefore well to raise a good stock of it on the bush. Natural spurs are found in greater abundance also when the young shoots are left nearly entire, and these bear plentifully in after years and should not be removed. As the trees get old and the branches produce weak shoots near their extremities, they may be removed, and stronger young shoots from the bottom allowed to take their place. Old Currant bushes have a wonderful amount of vitality, and the stock may often be renewed or increased by dividing the bushes when they have formed a broad stool of roots. The main limbs may be pulled away separately with roots attached; and if planted in good rich soil, will form good bushes quickly, and bear good crops of fruit. This plan is advisable in emergencies; but young plants make the finest and healthiest bushes in the end, and a young stock from cuttings should therefore be raised occasionally.

BLACK CURRANTS.—These bear in the same way as the Red, but they do not bear cutting back, and should only be freely thinned; the more young shoots that can be left the better, if they are not crowded.

RASPBERRIES.—In amateurs' gardens these are often injured through want of knowledge of the habits and wants of the plants. Raspberries like a tolerably moist and deep soil, and one that is rather loose and light. Stiff soils that get hard and dry during summer are not suitable, but may be rendered so by the application of coal ashes and rotten vegetable manure, horse droppings or cow manure, applied liberally. A mixture of all these put together, and trenched and mixed in with the soil in autumn previous to planting, would suit well, and plenty should be given if the soil be stiff and tenacious. Afterwards the ground about the roots should not be disturbed by the spade or fork, but the surface of the soil for several feet out from the Raspberry stems should be thickly mulched with decayed stable manure, or, failing that, plenty of short Grass. Mulching is highly beneficial to the Raspberry in all soils, but particularly in dry hard soils that crack and get thirsty during dry weather. As to crops of fruit, everything depends on getting up a strong set of young canes annually. The fruit is borne on the canes or shoots that grow the year before, and every autumn these die, and should be cut away, and the young ones tied in their places. These young canes are, however, often forgotten or neglected during the bearing season, very often getting broken and injured by nets, and by persons gathering the fruit. They should be looked to carefully, and poor and needy ones, and such as grow out of place or distant from the old stool, should be pulled up. Six or eight strong shoots should be left at each stool, and about November they should be tied in a bundle to stakes, or, what is better, to a rail or piece of strong band stretched on stout stakes about 3 ft. from the ground, when the tie will catch the canes about the middle. In this way the canes form one straight line. It is not a good plan to tie Raspberry canes in too rigidly. They should have a little play at the top, and for this reason we prefer a line to a rail. At the same time the canes are tied in, the tops may be shortened back from 6 in. to 9 in. according to their strength. Raspberry plantations need not be often renewed. If treated well and manured, the same plantation will last for years, and go on producing fine canes and good crops of fruit.

J. S. W.

INFLUENCE OF THE STOCK UPON THE GRAFT.

At the June meeting of the State Pomological Society of Michigan an essay with this title was read by Mr. H. S. Tyler, which comes more directly to the point than anything I have before read or heard. I will premise by saying of Mr. Tyler, to those who do not know him, that he is one of our best posted men in the sciences of pomology and horticulture. Old enough to have made many experiments and to have noted their results, he needs here no backer to his word or his note. He claims to have noticed as early as 1849 great differences in the flavour, size, and colour of several of the popular varieties of Apples grown upon different trees. This led him to notice carefully the departure from the normal type of those top-grafted upon the trees that had already borne fruit, the character of which he had known, and he found, in most or all cases, that though the fruit of

the graft did not lose its identity, still there was more or less departure from the true type either in the form, flavour, size, colour, contour, or keeping qualities.

He also placed on exhibition at the above meeting Baldwin Apples from three different trees, one of the common shape and flesh, one grafted by himself from a perfect Baldwin upon a seedling that had borne a smallish, sour, high-coloured Apple, with often a red tinge through its breast; oblate in form and keeping very late. The Apples from this graft, though still Baldwins, as reluctantly decided by the best experts after cutting and tasting, partook largely of the form and habits of the natural fruit of the tree, and as late as the 24th of July instant I saw them at his house in good keeping condition showing the inside tinge and the other peculiarities of the natural fruit. The third specimen exhibited was from scions from the same tree as the last, set upon a tree that had borne sweet Apples; and though the departure from the parent stock was less marked than in the case of the other, still it was sufficient to create strong doubts of its origin. These three trees were all growing near together on the same soil and under the same culture.

The exhibition of these Apples reminded me of several peculiarities that I had formerly noticed in the products of different Apple trees of the same variety. In two cases of five trees each of the same variety, bought and planted at the same time and showing no marked difference in appearance, one of each kind bore fruit three or four years before the others. In another case a tree of Talman Sweet bore Apples regularly every alternate year, but of inferior size with generally a bluish upon one side, but unmistakably a Talman Sweet; and what was still further remarkable of this tree, though not bearing on this question, the tree was forked in two main branches, of equal size, one bearing one year and the other the next. I know nothing of the history of the tree except that, during the ten years that I owned and watched it, it never bore an Apple on either branch except on these alternate years, and then never failed. Pedigree in grains has already become a prominent and interesting subject, and there is no question in my mind that pedigree in fruits is of equal importance and practicability. It is to me quite evident that in the general method of raising fruit trees, especially the Apple, there is a fault that is having a deteriorating influence in their fruitfulness and in the changing of the quality of their fruit.

Mr. Tyler closes his essay as follows: "I will sum up my conclusions by premising that for success in attaining and holding a desired point of excellence in fruit, the stock must be known to be healthy, hardy, and productive, and of a kind either sweet or sour, adapted to the maintenance and perpetuity of those qualities of the kind which is sought to be maintained. Hence, my position develops the fact that promiscuous root or top grafting—unaided by design to continue all of the good qualities of the kind, but operated for the purpose of rapidly multiplying trees for the markets—will always prove disastrous to the best interests of the orchardist, and carry with it more or less disappointment, loss of time and money, instead of profit and pleasure."—*Rural New Yorker*.

Cob Nut Failure.—The Cob Nut occupies a large area of valuable land for some miles around Maidstone, and up to the last week or two promised to be about the most remunerative crop which market growers had, the Nuts being fairly plentiful and of good size. Lately, however, it has been rumoured that the crop is likely to be a failure, and I fear that the report is too true. I have examined some of the finest and best-kept bushes that it is possible to see—bushes which in ordinary seasons have produced from 40 lb. to 50 lb. of Nuts each, and on these it is difficult to find a sound Nut. Instead of a kernel, nothing is found but a mass of watery pulp; the husks are already looking sickly, and the Nuts will doubtless drop before the ordinary season for gathering. There can be little doubt that the wet sunless season has been the cause of this misfortune, and possibly various soils and situations may be differently affected. I find that Filberts are not so bad, but they are very little grown hereabouts in comparison with Cobs. During the last few years the latter have been largely planted, as they are both heavier and more regular croppers than Filberts; consequently, very few Filberts are planted now, and existing plantations of them are being intercropped with Cobs, and the old Filbert stools are being cut away gradually.—J. GROOM.

Damsons and Bullaces.—The best crops of the year around Maidstone are those of Damsons and Bullaces. They are grown mostly on the outsides of orchards and in hedgerows to break the wind from other trees, and in open and exposed positions where tender fruits do not succeed. The best variety is the Farleigh Prolific, Cluster, or Crittenden Damson, an extraordinary cropper and a very hardy kind. It bears its fruit in bunches and commences to crop well at a very early date. Its strong leading shoots should be kept shortened well in at the winter pruning, when the tree soon becomes

furnished with a dense mass of fruitful spurs. The fruit, which is of excellent flavour, is about the size of that of the old Damson. This variety is altogether a safe sort to plant in quantity. The Cheshire or Shropshire Damson is a strong-growing variety which bears large oval fruit. It has a strong upright growth, and is a good late sort, but not so prolific as the preceding. Shepherd's Bullace is largely grown near Maidstone, where it is now bearing fine crops. Its fruit is large, and makes excellent tarts and good preserves; in fact, thousands of sieves of it go to the preserving establishments as a substitute for Green Gages; and, coming in as it does after most of the Plums and soft fruits are over, it generally fetches a good price. —JAMES GROOM.

Transparent Gage Plum.—Amongst the few varieties of fruit that will produce crops in a season like the present Rivers's Transparent Gage Plum is worthy of mention. At Cheshunt pyramids of this variety are all carrying good crops. The fruit is smallish, and equal in quality to the old Transparent Gage. None of the other Gages are bearing any fruit worth naming under the same conditions. It is evidently a sort that well deserves extensive cultivation.—P. G.

Lord Suffield Apple.—A neighbour of mine has just gathered 17 lb. of fruit from a single bush tree of this variety that came from Rivers's nursery in October 1875. The fruit hung in clusters round the lower part of the tree. The largest Apples weighed 8 oz. and 9 oz. each. The same tree bore well last year.—C. G., *Addiscombe*.

Prince of Wales Raspberry.—We have this and the Fastolf planted in lines under exactly similar conditions, and the annual growth of the Prince of Wales is quite double the height and strength of that of the Fastolf, and they have borne a crop in proportion to their vigour.—J. Groom, *Linton*.

Green Chisel Pear.—This sweet hardy Pear deserves all the attention that "B." claims for it (p. 239). This season, when most other Pears are hardly recognisable in the north of England, the Green Chisel is bearing a fair crop of marketable fruit. About Stokesley it is planted against walls, and I observe that it is good on a west aspect. I am sure that on walls hereabouts it would be far more profitable than many of the large sorts of Pears which so seldom come to maturity in Cleveland. The fault of the Chisel is the production of too many fruit. This should be corrected by thinning out the spurs at pruning time. On the terminal cluster of a young branch on a standard Chisel Pear, I counted the other day forty-one fair-sized Pears.—C. McDONALD.

THE FLOWER GARDEN.

THE POLYANTHUS.

THOSE who intend to grow the old Gold-laced Polyanthus would do well to procure plants of it as soon as possible after September 1, that being a very good time to repot them, or to lift the plants from the open border to pot for spring flowering. The Polyanthus is now grown for exhibition in the north of England, the Midland Counties, and in the neighbourhood of London. As far as the cultural requirements are concerned, it does not matter whether the plants are needed for exhibition or not. They are so easily grown, and the expenses attending their culture are so small, that the humblest amateur may compete on equal terms with cultivators on a large scale. When the plants are lifted from the open ground, each of them must be broken up into single crowns, which should be potted separately into 5-in. pots, and, if small, 4-in. pots will be sufficiently large. Good fibrous, moderately-clayey loam is the best potting material; it ought to be enriched with about a fourth part of rotten manure and kept open by means of a little sharp sand and leaf-mould. Pot rather firmly. When potted, place the plants in a cold frame, keeping the lights over them for a few days until they are well established. If a frame is not available, they may be placed out of doors and shaded for a few days; the attention required is simply never allowing the mould in the pots to become too dry, even in the dark days of midwinter. It has been stated that when the flower trusses appear all should be removed except one if the plants are to be exhibited; but the reasons advanced for such a practice are not very satisfactory. It is a good rule to allow as many trusses or flowers to remain on a plant as it will bring to a state of perfection without injuring it. A Polyanthus grown in a 4-in. or 5-in. pot will produce many perfectly developed trusses, and if all of them except one were removed the solitary truss left would not be thereby improved. I have noticed the northern exhibitors staging their Polyanthuses—single plants in the centres of 7-in. pots—with all the trusses removed but one. Now which is

the best example of cultural ability—that just alluded to or a plant in a much smaller pot bearing four or five trusses? The case is very different as regards the finer varieties of Auriculas, for unless these have double crowns it is but seldom that a plant produces as many as two good trusses. As a rule one is enough and all ought to be removed but that one. The markings on the Gold-laced Polyanthuses are very beautiful; the lacing is of various tints of yellow, and the ground colour of different shades of maroon and red.

The following are the properties of a Gold-laced Polyanthus: It should have healthy, well-formed foliage; the stem should be strong and elastic, from 4 in. to 7 in. high; the footstalks of the pips should be stiff, and so proportioned as to length that all the pips may have room to show themselves without over-lapping, and they should not be less than seven in number; the pip should be large, quite round, perfectly smooth at the edges, and flat; the tube should be round, clear yellow, and well filled with anthers; the ground colour should be bright, without any shading; the edging, which should be clear yellow, should go through the division of each limb down to the eye. The nearer any new flowers come to these points the more highly they are esteemed.

The late Mr. John Edwards gives the following list of Polyanthuses in the "National Garden Almanack" for 1853, and the only recently raised flowers that can be added to it are Cheshire Favourite and Smith's Duke of Wellington. His list contains Alexander (Pearson), Bang Europe (Nicholson), Beauty of England (Mand), Defiance (Fletcher), Exile (Crownshaw), Earl of Lincoln (Hufton), George the Fourth (Buck), King (Nicholson), Kingfisher (Addis), Lord John Russell (Clegg), Princess Royal (Collins), Royal Sovereign (Gibbons). In addition to the above fourteen varieties there is a very fine dark variety named Black and Gold; nor should Bullock's Lancer and President (Hilton) be omitted.

Every grower of Polyanthuses should also be a raiser of seedlings. "Hope springs eternal in the human breast" says the poet, and it is this which animates the seedling raiser. Certain it is that great interest attaches to the whole process of selecting the varieties for pollen and seed bearers, watching the growth of the seed-pods, sowing the ripe seeds, and looking for the germination of the plants. Then comes the pricking them off when large enough to handle; planting them out into the beds in which they are to flower in rich soil about August; and tending them well and carefully until the flowers open in spring. The old growers used to select a well-marked, "pin-eyed" flower for the seed-bearing parent, that is, one that has the stigmas protruding from the mouth of the tube. The pollen from a first-class variety should be applied to this, and maroon grounds should be crossed with flowers of the same colour, and red grounds with red.

J. DOUGLAS.

THE AURICULA APHIS.

WILL you allow me, as one who can unhappily write with a too sure practical experience, to advert to this to me very painful subject. I had about four years ago a very large and choice collection of Auriculas; no amateur at that time in the southern counties had anything like so extensive a one, and I was not a little proud of my George Lightbody's, Beauty's, and other first-rate varieties. Shortly after this I noticed something wrong with my collection; plants began to have a very settled, immovable look, neither growing nor dying, but standing still; this was in the winter. I examined one or two, but found nothing but what then seemed to me the filament or mycelium of some fungus. I had never heard of the woolly aphis. On top-dressing I found that there was around some of the collars a collection of fluffy stuff, and by this time Mr. Horner had referred to it in the *Florist*, and Mr. Llewellyn, of Ynisgerwyn, had also noticed its presence. I had then to turn out all my collection, to wash the plants, and repot, losing, of course, all hope of exhibiting. One of my plants was sent up to the Scientific Committee of the Royal Horticultural Society, when one of its members proclaimed the white substance to be the mycelium of a fungus, another that it was an insect, similar in character to the American Blight. The late Mr. Andrew Murray asked me to send him a plant, but just at that time Mr. Llewellyn forwarded him one. All doubt was set at rest. The insect was found and described by Mr. Murray in the *Gardeners' Chronicle*, with his well-known accuracy and minuteness. It was declared to be a new insect, and strangely enough had appeared at the same time in many collections in different parts of the country. I had hoped that I had got rid of it, but alas, in the autumn I found it as virulent as ever. I had to repot, this being done twice in that year. Last year I again found it very strong. I had recourse to all sorts of things. I tried Tobacco and Gishurst, soft-soap and sulphur, and thought if my Auriculas survived this they could not be the very fastidious plants they were said to be; they did survive, and so did the aphid. I talked the matter over with friends, and amongst others with

Mr. Llewellyn; he advised me to try paraffin, and I have been fairly successful with it. A teaspoonful to a quart of water is the proportion I use, putting it into a quart bottle and then shaking violently, and, before the oil has time to separate, pouring it on the soil of the plant infected. I find that I still have it, although not to anything like the extent I had. Mr. Llewellyn also tells me he has some of it still, and this will be I think a sufficient answer to the remark of one of your correspondents that it is easily got rid of; it is most difficult to eradicate.

It is a mistake to suppose that the insect is not winged. I believe the males are uniformly so and the females sometimes; but, independently of this, the curious fluffy substance which surrounds the body is peculiarly adapted for carrying them to a distance, acting as the down of certain seeds—as the Thistle—for this purpose. I do not think that they are contained in the soil; at least, I know in my own case that when I detected them and imagined that they must be in the soil, I procured all the materials of my compost purposely from a distance, and yet they re-appeared; and, indeed, with me it seems that either I must abandon the culture of my favourite flower, or else keep a constant watchfulness over every plant. I have found what appears to me (though I have not examined it scientifically) identically the same pest on the roots of Lettuces, Sow Thistles, &c., in my garden, so that even if I get rid of them on my Auriculas I have no safety; they may any day come on the plants from some other source. By outward examination of the plants, and by the use of paraffin, I hope to keep the evil in check; but my real pleasure in my collection is gone. It is a constant source of anxiety, but yet I cannot give it up. I ought to have been amongst the exhibitors at the National Society for the last three years, but have been completely put out of the fight by this horrible pest.

My strong advice to your correspondent "H. J. N." is not to despise your enemy; do not heed those who pooh-pooh it! Before you repeat try the paraffin; or if you have already repotted all, watch for it. Turn out the pots on the hand, so as not to disturb the earth, and if you see it on the outside, or detect a slight white cloud on the inside of the pot, rub off all that you can, and then try the paraffin as I have advised above.

It is one of those mysterious attacks to which plants are subjected, for which no reason can be given. I do not think that it was ever known to our older florists; at least, in a treatise I have upon Auriculas I find no reference to the aphid, except the green one affecting the leaves, and I fear that it is one of those persistent foes which, like the American blight, require the most constant vigilance, but which may by that vigilance be kept under, if not got rid of altogether.

DELTA.

CLEMATISES AT WOKING.

THESE are now in great beauty and well worth seeing. Since the advent of C. Jackmanni, so many fine varieties have been raised that intending purchasers often experience a difficulty in making a selection. However minute and faithful the descriptions in trade catalogues may be, it must be admitted that they often fail to convey a true idea of the worth of a plant. I would therefore advise that a personal inspection of some such collection as that at Woking be made, where may be found the most meritorious and well proved kinds, not only in a high state of development, but so arranged that their various merits may be easily compared. Many of your readers may not, however, be able to make the personal inspection here recommended; I have therefore in their behalf made a note of the most ornamental and distinct varieties now flowering in Messrs. Jackman's trial ground, any of which may be relied upon to give the greatest satisfaction. Individual tastes differ, but in the selection here given representatives of the various shades of colour which prevail in this family of flowering plants will be found. The kinds enumerated are also all remarkable for distinctness and the fine effect which they produce when grown into large specimens. In the first place I would advise those who wish for one Clematis only to procure Jackmanni. Take it all in all, this variety is not to be surpassed for general decorative purposes; it is a profuse flowerer, free grower, and the intense purple hue of the flowers renders it a strikingly ornamental subject for the flower garden. It is equally beautiful either allowed to ramble freely over trellis work, trained to an old tree stump, or pegged down in beds in the flower garden. It is still one of the most effective kinds in the Woking collection. For a complete contrast to the foregoing, *Lanuginosa nivea* may be chosen, the flowers of which are pure white, and produced very freely. *Lanuginosa candida* is also a highly recommendable white variety, the individual flowers of which are fine, and are produced in very considerable profusion. For bedding purposes this variety proves very useful. *Velutina purpurea* is a complete contrast to the last-named varieties; the flowers are of a blackish mulberry tint, thus imparting to it a very distinct appearance. It is a hand-

some effective variety, and one which should be in every collection. Mrs. James Bateman is a pleasing variety, with lavender-blue flowers, and is highly recommended for forcing purposes. Another fine blue is Lady Bovill, one of the most profuse bloomers in cultivation. Thomas Moore is a very handsome variety with violet flowers, to which an exceptional development of white stamens lends additional interest. Lady Caroline Neville is a most beautiful kind; the flowers are French white with mauve bars. This is one of the most chaste varieties in cultivation, and should be added to every collection. Otto Fröbel is also a fine greyish-white kind, distinguished by the exceptional size of the flowers. A very distinct—although, in comparison with the above-named kinds, a small-flowered—variety is *Viticella rubra grandiflora*. The flowers are of a bright claret-red, and, as seen growing amongst the various shades of blue, purple, and white, it forms to them a very pleasing contrast. In a collection of a dozen varieties I should certainly include this one.

Rubro-cœrulea and rubro-violacea may also be mentioned as two very effective kinds. Those who would like half-a-dozen distinct and effective varieties would find the following to answer their purpose: Jackmanni, Lady Bovill, *velutina purpurea*, *lanuginosa candida*, Lady Caroline Neville, and rubro-cœrulea. These six varieties will suffice to produce a blaze of beauty the summer and autumn through. The great advantage which Clematisses enjoy over flowering plants generally is their ability of bearing with indifference the vicissitudes of an English summer. Continuous heavy rains do not appear to sensibly affect them; on the contrary, the excess of moisture at the roots seems to impart additional vigour to the plants. Many flower gardeners are now beginning to think that it would be better to rely more upon those plants which are certain to produce good effects than to depend upon such as can only display their capabilities in a fine summer. The experience of this season has proved that whilst *Pelargoniums*, &c., have failed in an unsatisfactory manner, and many other bedding plants have dwindled entirely away, the Clematis has afforded a glorious display of bloom the whole summer through. It would therefore I think be well to introduce this plant more freely into our garden arrangements, allowing it to take the place of a portion of our so-called bedding plants. Much of the labour of propagating and the expense of wintering would thus be obviated, and the grower would not feel so severely as is now the case, when so many tender plants are used, the effects of an inclement season.

The mode of training adopted by Messrs. Jackman is very simple. Stout posts about 4 ft. or 5 ft. high are inserted in the soil, around which the plants climb, completely clothing them, and developing into a dense mass of bloom at their summits. Specimens thus grown are also to be seen at intervals amongst the ordinary nursery stock, thus affording an idea of the way in which the Clematis may be employed in shrubberies and in the wild garden. In some instances the plants are trained over stout branches put together in the form of an inverted basket. This form of training is also very effective, and could be carried out in many situations where the standard form would not be admissible. Beautiful and effective as is the Clematis when thus treated, I must own to a predilection for a more unrestrained development. The Clematis is *par excellence* a climber of a very vigorous—and, in many instances an extremely hardy—description. I should therefore have much liked to see its capabilities tested in this direction. I would wish to see it rambling unrestrainedly in well-chosen, natural positions, where it would undoubtedly attain a luxuriance of development hardly attainable by a more dwarfed system of culture.

JOHN CORNHILL.

Biflora.

Primroses.—From "An Old Gardener's" reminiscences of the Primroses (p. 234) it would appear that few of them are of modern origin. The latest addition, a pretty mauve-coloured one, introduced from the Continent last year, seems to be one that is likely to prove a great favourite. Curiously enough, within the past few years M. Lemoine, of Nancy, has introduced some remarkably double forms of the Alpine Auricula, originated, doubtless, in some process of careful selection and seeding, and it is just possible that the double Primroses originated in the same way. I do not know what may be the experience of others; but, so far, all my endeavours to secure genuine hybrids from diverse species of the Primula family have failed, and I do not think that—except from our own indigenous species, *P. acaulis* and *P. veris*—there yet exist any garden Primrose hybrids. Polyanthus and Primula amoena have refused to cross; so also have *P. japonica* and the latter; but there is perhaps more actual affinity between *acaulis* and *veris* than between any other two species. Mr. Clapham, of Scarborough, has been busy during the past few years in making crosses between the best garden forms of Polyanthus and Primrose, and I have now sown some seed of his latest crosses that may produce some good results. The rich-

coloured single Primroses have attained an excellence both in form and colour that it will be difficult to beat. They are much more robust than are the high-coloured double ones, and in that respect only are worthy of a wider cultivation.—A. D.

THE RHETIAN WALLFLOWER. (*ERYSIMUM RHETICUM*.)

THE annexed engraving represents a pretty mountain flower which, though rarely to be met with in cultivation, is a common Alpine in Rætia and the neighbouring districts, where in early summer broad dense-tufted masses of it are aglow with pretty clear yellow blossoms. It is by no means a newly-introduced plant to our gardens, as it has been in cultivation for upwards of half a century. It is somewhat similar to the Dwarf Alpine Wallflower (*E. pumilum*) of the Swiss mountains, which is a perfect gem, rarely exceeding 3 in.



Erysimum rheticum.

in height, and the dense tufts formed by it are studded with bright lemon-coloured blossoms, which are large compared with the size of the plant. The Rhetian kind bears a resemblance also to the Lance-leaved Wallflower (*E. lanceolatum*), a common European plant which has major and minor varieties, neither of which, however, is so desirable as the kind under notice. *E. canescens*, a South European species with yellow, scentless flowers, is also a neat-growing Alpine, and so is *E. rupestre*, than which few plants are more to be desired for adorning rockwork. All of them are easy plants to grow, and they all delight in gritty soil in a well-drained and sunny position on the rockery. W. G.

ELLACOMBE'S YUCCA.

As the foster father of such a lovely plant as the *Yucca tenuifolia* (see p. 214), of Haworth's "Suppl. Plant Succ.," p. 34,* Mr. Ellacombe certainly, as it appears to my mind, deserves to be popularly credited with this plant by all who grow and love hardy evergreen plants. To settle the matter of botanical nomenclature, I would suggest that Mr. Osborn send good specimens of the flower-spike and leaves to Mr. Baker, Kew, and then if distinct,

* Haworth under "habitat" says "ex Malta acceptit Dom. Loddiges, A.D. 1817: folia in nostris (forte junioribus) 4-5 lineas lata." Haworth does not appear to have seen the flowers even, and as to the foliage of Ellacombe's *Yucca* being "4-5 lines broad," it is ridiculously under the mark, even for a weakly young plant, and he is careful enough to say his was strong.

as I hope it may be, let it be definitely fixed once and for all. Pray let no more be said in repudiation of such a noble plant, but let it be known as Ellacombe's *Yucca* by all those who fail to appreciate the subtleties and urgent necessities of holding firm as Medean law to the priority of Latin names and descriptions. That this particular plant should be so known is all the more desirable since Mr. Ellacombe has always shown himself friendly to the genus, a fact to which past numbers of THE GARDEN attest, as he was also to Daffodils, Lilies, and a whole host of other lovely hardy flowers at a time when they were "under a cloud." That was in the "dark ages" of hardy plant culture, however, and now all that is changed, and our great-grandmothers' favourites hold their own in the gardens of many "Lady Corisandes," just as the elegant furniture of the "Chippendale" period, and pretty bijouterie of the "good old times" do in their drawing-rooms. As it is, this fine plant has already been referred to more than once in THE GARDEN as *Y. Ellacombei*, as *Y. tortulosa*, as *Y. tenuifolia*, and as *Y. Ellacombei* var. *tortulosa*; now the plant is in bloom pray let Mr. Baker have flowers, and so settle this question, but if distinct, then *Y. Ellacombei* is, of course, the fittest name to apply to it.

I remember once or twice having seen a large plant in the Fulham nursery, perhaps the offspring of the original, which Mr. Ellacombe received from the old Hackney collection of the Loddiges nearly half a century ago, and the brilliance of its crimson-brown buds, as seen in the early morning sunshine, impressed me as being most beautiful. No other *Yucca* ever pleased me so much—no, not even the Mexican *Y. baccata*, with its great, erect clusters of golden Banana-like fruit, and I shall one day write as polite a note as it is possible for me to do to my friend Mr. Osborn, asking him to send a small sucker or offset of his fine old specimen to a fine old garden wherein *Yuccas* generally "do" exceptionally well, and where at the present time *Y. gloriosa*, *Y. recurvata*, *Y. flaccida*, *Y. filamentosa*, and one or two others, are very ornamental, their spikes of snowy bells being backed by Hollies and other dark-foliaged evergreens, by which their white flowers are considerably enhanced in effect, and particularly at dusk; then, indeed, our *Yuccas* and the lovely *Hyacinthus candicans* are most beautiful. B.

—Mr. Osborn (p. 236) will find the name *Y. tortulata* in "Baker's Monograph," No. 29; but since that has been published it has been figured as a distinct species (?) in Refug. Botan., 317, and as a sub-variety of *Y. variafolia* in Engelmann's Monograph. My own idea now is that it is a hybrid between *Y. recurvifolia* (which it resembles in the leaves), and *Y. superba* (from which it would have acquired the red tinge in the flowers). But whatever its origin it is one of the handsomest of the genus; and the name, being recorded by such authorities as Baker, Wilson Saunders, and Engelmann, may stand till a better is found. To those who grow *Yuccas* I may recommend *Y. orchioides* (Bot. Mag., t. 6316). It is now in flower here, and is very distinct from all the other species in that the flowers are not pendulous and bell-shaped, but are quite stellate. It is, I believe, a scarce plant.—H. N. ELLACOMBE, *Bitton Vicarage*.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Coleus Hendersoni.—This is a truly fine addition to this useful family of plants. Its leaves individually are very large and highly coloured, and the habit of the plant is all that can be desired. Those who have to keep up a supply of fine foliaged plants during the summer months should grow this *Coleus*, both for room and conservatory decoration. It is so easily propagated that there is no difficulty in maintaining a supply of fresh well coloured plants the whole summer through. They are very effective, and may often be used in situations where valuable plants would be liable to sustain injury. At housing time one or two good plants of each variety placed in an intermediate house, will, if placed in a brisk heat in spring, furnish plenty of stock for the ensuing season. There is no need to take up room during the winter with cuttings, as those struck in the early months of the year will generally grow away more freely than those struck in the autumn.—J. CORNHILL.

Tuberous Begonias from Seed.—That these will succeed out-of-doors in ordinary summers is placed beyond a doubt by the manner in which they have withstood the late exceptionally trying season, when plants apparently of a much harder character have failed. I lately saw a bed of seedlings raised in heat in spring, and planted out in a very small state, that had made pretty plants, in a very exposed position where *Iresine*, *Coleus*, and similar plants, had almost or quite perished. In order to obtain, however, the full beauty of these lovely *Begonias* they should be reared to a good size under glass, and not planted out in ordinary years till the first or second week in June, when the beds are cleared of bulbs and

biennials; they will then look well at once, and have every chance of succeeding. Of course, when uniformity of colour is required, and plants of good named sorts are procurable in quantity, they will be the best, but for the majority of cultivators a packet of seed sown in very fine soil in February will answer every purpose. Prick them off into pots or boxes as they become strong enough to handle, and always look carefully after the smallest weakly growing plants, as in most cases they will prove the best.—J. GROOM, *Finton*.

Mimulus Semi-aquatic.—Excellent evidence of the fondness of *Mimulus* for moisture has this year been afforded by the luxuriant growth which they have made in the open air. Planted out in good soil, and heavily dressed with Cocoa fibre refuse, they have thriven better than in any other previous season, thus showing how much they appreciate a cool temperature and plenty of moisture. A careful observance of the habit of the plant shows that it has almost the aptitude for branch rooting that characterises the *Watercress*, pushing out roots at every joint where these come into contact with soil or moisture. I find that they have a peculiar liking for Cocoa fibre refuse, doubtless because this offers speedy root hold for the tender rootlets, and is also invariably damp and cool. In a similar way the Musk (*Mimulus moschatus*) likes plenty of moisture, and without doubt would make a good raft or semi-aquatic plant. Harrison's Musk under glass grows and flowers well where moisture is abundant; plants of it kept deficient of such moisture bear no comparison with those which have plenty of it. This is, without doubt, the most continuous blooming plant in existence, and I feel sure would, if kept in a fair temperature through the winter, bloom for ever. It is most useful for edging permanent plant beds with in conservatories, or indeed anywhere under glass where something is needed to give a gay appearance and give little trouble. Those who have marshy places or bogs within their grounds will do well to try all the more robust members of the *Mimulus* family in such a position, including the fine spotted varieties of Clapham's Strain, the finest and most robust of all the garden forms, growing well in the open air, and producing blooms from 2 in. to 3 in. across. Seed sown now in pans will produce plants large enough to prick off into small pots about Christmas, and these will make large plants consisting of some half-dozen shoots in the spring.—A. D.

Mimuluses for Fountain Decoration.—Under the spray of the Boulder Falls in the Rocky Mountains, where indeed so much spray falls that one almost needs an umbrella, I gathered a small *Mimulus* native to that region, that was much more luxuriant than the same species gathered under other circumstances. There seems no doubt that the various species of *Monkey-flower* would make admirable subjects for fountain decoration.—*Gardener's Monthly*.

Campanula latifolia.—The remarks of "W. G." (p. 233) on the adaptability of this Harebell for naturalisation in wild places oblige me to point out that the plant is truly wild, and one of the greatest ornaments of our native flora hereabouts. It affects ditch-banks, water-courses, ponds, and river sides, and when seen in such places in masses it is charming. Though very beautiful the plant is, however, gross in habit, and like a Dock will grow anywhere, but seems most at home by brook sides. This may give a hint to those who may choose to plant it in such places. Like most of the family it passes through all shades from blue to white, and I have a mass of the white variety just now going out of flower.—THOS. WILLIAMS, *Ormskirk*.

The Spikenard of the Ancients.—Although Mr. A. Perry (p. 235) states what I am aware of regarding Sir W. Jones's "discovery," also Dr. Roxburgh and Dr. Royle, yet I have a set off in the opinion of Linnaeus, Pomet ("History of Drugs"), and Lewis ("History of the Materia Medica"), who also speak of the *Nardus indica* as a species of Grass, and carefully distinguish it from the *Nardus celtica*, which is a small species of Valerian, and from the *Nardus italica*, which is a Lavender. See also Sir Gilbert Blane's paper in the "Philosophical Transactions." Sir W. Jones in his paper argued as a philologist rather than as a botanist.—G. S. WINTLE, 10, *Paragon Green, Surbiton*.

Martynia fragrans.—This fine Mexican annual is a most useful plant for conservatory decoration in autumn. In order to obtain good plants for this purpose the seed should be sown in a brisk heat, about the end of March or beginning of April, and the seed pan must be kept well moistened until germination takes place. Pot the young seedlings singly into small pots as soon as they are fit to handle, and grow them on in an intermediate temperature until the middle of June. After this time a cold frame will be found the most suitable quarter for them. Pinch out the points of the shoots occasionally, and give them increased root room as the season advances, always using a light rich fibrous soil, with plenty of drainage. Early in August give them a final shift into 9-in. or 10-in. pots, and in a week or so after moving them stop every shoot. By the middle of September they will have developed into fine sturdy plants, each

showing a dozen or more spikes of bloom, and for beauty of colouring, combined with a fragrance that will perfume a large house, this plant is not easily surpassed.—J. ROBERTS, *Gunnorsbury Park*.

TREES, SHRUBS, AND WOODLANDS.

PLANTING FOREST TREES.

THE cold wet summer through which we have passed leaves the land in a state about the least fitted for planting operations, which should now be shortly commenced. Even where early cultivation was attempted, such as steam ploughing, trenching, and pitting, the land has settled down very little the better for the operations, and the warmth of soil which is found to be conducive to the success of early transplants will be lost to the young plants, many of which will not ripen their young shoots until the approach of winter. This places them in considerable danger from the spring frosts, and the Spanish Chestnut, in particular, often gets cut back by them upon wet land after such a season as the present. Upon very wet soils pitting is under any circumstances but a poor preparation for planting, as the water which draws freely to the holes keeps the roots cold and backward.

Many of the failures in planting are due to unsuitableness of soil and site, late removals, and the large size of the plants used. From the effects of wind-waving, which disturbs the old roots and ruptures the rootlets, arises the most fertile cause of the necessity for re-planting or filling up. Careful observation shows that under ordinary circumstances of soil and planting, small trees planted out under 3 ft. high, will, even in moderately sheltered places, in a few years outstrip those put out at a height of from 5 ft. to 8 ft., and where the exposure is great the difference will be even more marked. Where the system of notching-in is adopted only small plants can be used, and to this may be attributed the great success which generally attends this method, which is much practised upon hilly districts, and where the lightness of the soil renders pitting unadvisable on account of the small amount of moisture which the land afterwards retains. Better results may generally be obtained by using Firs under 2½ ft. high, and deciduous trees under 5 ft., than by trees of a larger size. In making extensive plantations the following will be found useful ages at which to select trees:—Larch, two years seedlings once transplanted; Silver Fir, Scotch, and Spruce, two years seedlings which have had one year in fairly open lines; Birch, Elm, Sycamore, Mountain Ash, Hornbeam, and Ash, two years seedlings nursed either one or two years according to soil; Oak, Beech, Horse and Spanish Chestnut, planted out as seedlings, two years nursed, and tapped in the nursery; when both the soil and situation in which the plants are to be placed are good, an additional year in the nursery may prove of great advantage to them. Such as are tap-rooted, in particular, should have one year in tolerably good soil after being undercut. These instructions apply to trees intended for the woodlands only; such as are designed for parks, pleasure grounds, hedgerows, and screens, may be put out at any required size, and afterwards protected, watered, and mulched as the necessity for such treatment arises.

Great assistance in filling up Oak plantations may be obtained by dibbling in Acorns and by layering from suitable stools. The advantages of the latter method can hardly be realised by those who have never practised it upon a large scale. The support which the layers derive from the parent stool causes them rapidly to outstrip the growths from Acorns or from recent transplants. By selecting two years shoots and carefully layering them in cultivated ground, and at the end of the second year again layering the young plants, a considerable space around the original stool may be filled up in a few years; and one great advantage of the system is that there is no fear of wind-waving, even upon the greatest exposures, and the support which the new plants derive from the parent stool not only promotes rapid growth, but also enables it to be carried on upon sites where from poverty of soil trees cannot be planted with any prospect of success. Layers may either be cut away at the end of the second or third year, according to the quality of the soil; but when it is intended again to layer them from those first formed, no cutting away should take place until the process is finished.

The number of plants required per acre to plant up at any given distances may be calculated by dividing 43,560, the number of square feet in an acre of land, by the square of the given distance in feet; thus at 3 ft. apart 43,560 ft. divided by the square of 3, or 9, gives 4840; at 5 ft. apart, divide the same number by the square of 5, or 25, and the result is 1742. The Scottish acre containing 54,760 ft., and the Irish 70,560 ft., the same results may be obtained by treating these numbers in a similar manner. In filling up with Acorns, a system which may be followed with advantage in a season when these are plentiful, and when from the quantities lying upon the surface of

the ground the vermin are not so likely to attack those planted, these may be dibbled in in all open spaces as soon as they fall from the trees. By paring off the surface with the planting mattock, and afterwards stirring the soil with its opposite end, pointed like a pick, three or four Acorns may be dibbled into each selected spot at a depth of about 2 in., the ground being closed with the foot. The young plants will require to be kept clean for a year or two, when superfluous trees may be removed to the nursery, or used for filling up elsewhere. When planted in spring, choose the end of March or beginning of April; but the Acorns used should have been well kept.

Differences of opinion prevail respecting the advantages to be derived from Oaks raised direct from the Acorns in the woods, as compared with those which are transplanted from the nursery; but there is every reason to believe that as good timber can be obtained by the one method as by the other. Where the young plants are undercut in the nursery they generally flourish more vigorously after removal, and the process of heading down bark-bound and unhealthy-looking plants often, in a few years, gives them the lead of the uncut ones. Too much importance is attached to an undisturbed tap-root by those who forget that its main functions are lessened, or cease altogether, when the tree gets well established in the soil. Thus, when the top of an Oak assumes a rounded form the tap-root ceases to descend, even though the lateral roots may still continue active.

A. J. BURROWS.

AUTUMN BLUE BERRY.

(BILLIARDIERA LONGIFLORA.)

THIS is a delicate little wall shrub, perfectly hardy, having withstood the frosts of the late winter with no other protection than that



Autumn Blue Berry (*Billiardiera longiflora*).

afforded by a low greenhouse wall with a south-easterly aspect. Our sketch represents a tiny spray from a little plant about 2 ft. high, which is just now very pretty, the fruits being very large in proportion to the tenuity and stature of the plant, and of the most beautiful shade of lavender-purple colour. Ten or twelve seeds are contained within each fruit, the lining of the large inner cavity being of satin-like whiteness—indeed, an effective contrast with the glossy exterior. Apart from the reddish-crimson flowers and graceful habit of growth, this elegant little shrub well deserves a place amongst the more select of berry-bearing plants; the berries of this and several other species are, in fact, edible, but inferior in flavour to those of *Eugenia Ugni*. At a recent exhibition of the Royal Horticultural Society of Ireland Messrs. R. McClelland & Co., of Newry, had a small group of this species very prettily berried in $4\frac{1}{2}$ -in. pots, thus forming graceful and effective plants for indoor decorative purposes. I am afraid Mr. T. Smith had to answer many enquiries as to the name of the plant, for it was very often singled out from many more showy plants by ladies, who were, doubtless, as much attracted by the novel shades of colour afforded by its berries as by its slender and graceful habit of growth. It is Pittosporaceous and nearly related to the pretty but now-a-days sadly neglected old *Sollyas*

as will be seen, however, the shape of the fruit is very different. From "*Paxton's Botanical Dictionary*" we learn that the genus was named in honour of Julian Labillardière, a botanical traveller, and that it was introduced from Van Dieman's Land as long ago as 1810. B.

INJUDICIOUS PLANTING.

IT often happens that in laying out a new place one is anxious to shut it in as soon as possible, and in order to effect this both trees and shrubs are often planted too thickly; but if such work were submitted to a practical man it would be so arranged that a long time would elapse before much thinning was required. Stevens's Green, Dublin, is now in process of improvement (?), and it is being done in this way: there are already numbers of half-grown trees on it, healthy and vigorous, and having a good forty-five or fifty years to run at least. They consist of Thorns, Elms, Laburnums, Ash, and others, and they are for the most part placed at sufficient distances apart to enable them to develop their proportions and produce the desired effects. But people cannot "let well alone;" other trees have been planted in the most reckless manner underneath, around, and amongst them; so close, in fact, that in many cases the branches of the established trees have already whipped the tops off the newly-planted ones. One could understand the reason of this proceeding if the space were ample and other and distinct trees were invariably put in to produce contrasts. But this is not the case; quite the contrary. For instance, in one place there is a fine group of six or seven thriving Elms whose branches already nearly touch each other; this space is crammed full of other Elms. In groups of Thorns which already touch each other, other Thorns are planted. In some few instances there has been a faint attempt to produce contrasts, and it is done in this way: In the case of a group of *Acer campestre*, *Platanus laciniata*, and a handsome Thorn, whose branches at present nearly touch each other, and which to a casual observer needs no "improvement," a number of other Thorns are planted all about and amongst them. In another group of Thorns a number of Sycamores have been planted so as to touch one another. In another group, composed of large Thorns, Elms, and a Birch, other Thorns have been planted underneath. In another place Sycamores are planted underneath Elms. In another, where a fine *Acer*, a Laburnum, and two Thorns touch each other, all round and underneath Chestnuts are planted; the tops of some of these have been already knocked off. In the case of new groups, trees 10 ft. or 12 ft. high are planted, so as to already nearly touch each other, and the ground underneath is thickly covered with shrubs; but a very short time will elapse before the life and death effort, portrayed by Mr. Baines (p. 218), will take place. It really seems incredible that in such a public place such things should be done, but there they are for all the world to see.

Newry.

T. SMITH.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Ruta graveolens variegata.—This deserves a place in all shrubbery borders; its variegation being so bright and constant makes it look in the distance as if it were loaded with white flowers. —T. SMITH, *Newry*.

Vitis Labrusca.—This handsome-leaved Vine is an excellent climbing plant, well worth a place on trees, stumps, or in half-wild places. It is very fine on the house at Belmont, Carlow, whence it was brought from Canada by Captain Thomas. Its delicate scent when in flower fills the woods in North America. —V.

Cut Leaved Alders at Wynnstay.—There are some fine spreading specimens of these at Wynnstay, which are very suggestive of the great value which what a botanist may call "a mere variety" may possess. A variety, at first noticed for a peculiarity in the leaf, forms a tree here about 70 ft. in the diameter of its spread of branches—a most picturesque object, and in all ways highly ornamental. There is a lightness in the foliage and spray of the tree which in contrast with the large wide spreading branches is peculiar. This is only one of several hardy trees in which a variety in the form of the leaf, in the angle which a branch bears to the stem, or some other peculiarity that appears small in itself, may be accompanied by a total change in the form or habit of the tree, or even in its size and the effect of its foliage in the landscape. —V.

The Exmouth Variety of *Magnolia grandiflora*.—With reference to the remarks of "J. C. B." (p. 240) as to the superiority of this variety, I may mention that any one not practically acquainted with the two kinds may easily distinguish them by looking at the under sides of the leaves, which in the ordinary form are green, but in the Exmouth or free-flowering sort are quite cinnamon-coloured. I have no doubt that intending planters may procure the true variety in any good nursery, and, although dearer than M.

g. andiflora, it is well worth the extra outlay. As regards the time of planting most nurserymen keep a large stock in pots, and being full of roots they may safely be planted out at any time. —J. GROOM.

Weeping Birch.—A striking illustration of the habits of plants and trees to adapt themselves to particular circumstances is afforded by a Weeping Birch here, planted on a point close to the water's edge. Thus situated it is thriving in the most luxuriant manner, and its roots are really growing into the water in masses, and apparently quite at home. —T. SMITH, *Newry*.

Influence of the Scion on the Stock.—Whilst visiting the Anmer nurseries, Edgware, lately, my attention was directed to some Laburnums that had been grafted last spring with the Golden variety; the scions had made a fair start, but the severe winter was too much for them; although it had not injured the stock it had completely killed the scions. This summer's growth of the stock, however, shows foliage tinged similar to that of the scion previously grafted on it. The shoots exhibiting this golden appearance start from below the scar left by the graft. At first sight I thought it was only weakness, but the vigorous growth of all the trees (seven or eight in number) showing this peculiarity was entirely opposed to this conclusion. —JOHN W. ODELL, *The Gardens, Barrow Point, Pinner*.

Cytisus villosus.—A large specimen of this (about 6 ft. high), quite unprotected, has survived the last winter safe and sound, and has produced a glorious mass of golden-yellow blossoms. A peculiarity belonging to this species is its habit of flowering in a small state; some seedlings here, not much more than a year old, are blooming as freely as old plants. —T. SMITH, *Newry*.

THE LIBRARY.

THE HEREFORDSHIRE POMONA.*—PART II.

THE second part of this, in all respects, valuable work on fruits is now before us. It contains beautifully-coloured figures and wood-cut outlines of forty-one different kinds of fruit. Amongst introductory papers are "Modern Apple Lore," and "A Sketch of the Life of Lord Scudamore," by Dr. Bull; also a paper "On the Cordon System of Growing Pears," by Sir Henry E. C. Scudamore Stanhope, Bart., with a representation of the Cordon Pear wall at Holme Lacy. This part also contains the following representations of fruit, viz.:

Blenheim Orange	Winter Pearmain	Black Foxwhelp
Gloria Mundi	The following Pears:	Dymock Red
Pott's Seedling	Williams's Bon Chrétien	Munn's Red
Tower of Glamis	Forelle or Front Pear	White Must
Winter Hawthornden	Louise Bonne of Jersey	Sam's Crab
Nelson Codlin	Beurré d'Amulis	Sack Apple
Alexander	Flemish Beauty	Red Streak
Cox's Pomona	Beurre Harly	Cherry Norman
Cellini	Doyenne du Comice	Red Norman
Beauty of Kent	Pitmain Duchess	White Norman
Herefordshire Pearmain	And the following Cider	Strawberry Norman
Scarlet Pearmain	Apples	Handsome Norman
Adams's Pearmain	Rejuvenated Foxwhelp	Black Norman
Lamb Abbey Pearmain	Bastard Foxwhelp	Pym Square
Mannington's Pearmain	Red Foxwhelp	

The following extract will give an idea of the way in which the matter relating to the fruits figured is arranged:

"1.—WILLIAMS'S BON CHRÉTIEN.

[Syn.: *Wheeler's; Bartlett; D. Levent; Williams's.*]

"In Amitermis vale, the Sabine hours
Add! Bon-crétiens to their former stores"

(*Rapin, "The Orchard," translated by G. Turner.*)

"This highly-esteemed Pear was raised a short time previous to 1770, by a person of the name of Wheeler, a schoolmaster at Aldermaston, in Berkshire; from him it was obtained by Mr. Williams, the nurseryman at Turnham Green, Middlesex, and being by him first distributed, it received the name it now bears. In 1799 it was introduced to America by Mr. Enoch Bartlett, of Dorchester, near Boston, through whom it became generally distributed, and has ever since been known there by the name of the Bartlett Pear. It attains the highest perfection in America, and is esteemed as the finest and best keeping Pear of its season. It has even been brought back to England with its new name.

Description.—Fruit, large, obtuse-pyriform, irregular, and bossed in its outline. Skin, smooth, at first pale green, changing as it ripens to clear yellow, and tinged with streaks of red next the sun. Eye, open, set in a very shallow depression, but more generally even with the surface. Stalk, an inch long, stout and fleshy, and inserted in a shallow cavity. Flesh, white, fine-grained, tender, buttery, and melting, with a rich, sweet, and delicious flavour and powerful musky aroma.

"An excellent autumn dessert Pear; in season in August and September. The tree is healthy and vigorous, but not a regular and abundant bearer. It succeeds best as a pyramid or standard on the Pear and Quince Stock, when the fruit is much better flavoured, though not so large as when grown on a wall. The fruit should be gathered before it is ripe, at intervals of a few days, that they may not all ripen together—for when ripe, it soon becomes mealy and decays. Its cultivation by the London market gardeners has become more limited than it was, in consequence of its fickleness in bearing.

"An excellent coloured representation is given of this Pear in the 'Transactions of the Royal Horticultural Society' (London), Vol. II., p. 250, where, and in Vol. III., p. 357, its history and description are given." H.

EUROPEAN FERNS.

MESSRS. CASSELL, PETTER, & GALPIN have just issued the first part of this new addition to our works on Ferns. The design of the publisher is to supply a complete account of all the indigenous Ferns of Europe, including their local distribution, and directions for their culture. In the introduction the author gives a brief survey of Ferns in general, showing their connection with the flower forms of vegetable life, and their position in the vegetable kingdom. Then follows a description of the various organs of Ferns, a part of the work which is treated with much clearness, so much so that with such aid even the moderately informed may be able to distinguish a Fern from all other plants of similar appearance. Accompanying this first part is a coloured plate giving a tolerably good representation of the Östrich Fern, which according to our author is the largest and handsomest of the Ferns of Europe. This is only partly true. It may fairly claim to be the handsomest, but it is not the largest, if we take into comparison the Royal Fern and the common Brake. The characters are written in a pleasing popular style, and deal with both the superficial aspects of the plant and its anatomical structure. The following extract will give the reader some idea of the plan adopted by the author:—

"**Onoclea Struthiopteris**, Hoffm.—This is the largest and handsomest of the Ferns of Europe, and, indeed, has some pretensions to be considered a tree Fern. This results from the caudex forming an upright thick trunk, which, however, never attains to any height, reaching at most to three-quarters of a foot: still, in nature and construction it is precisely like the large stems of the tree Ferns of tropical and sub-tropical countries. From beneath the surface of the ground the caudex gives off stolons, which run for 7 ft. or 8 ft., and propagate the plant. The fronds are of two kinds—barren and fertile, the latter bearing the sori. The barren fronds are very numerous, and form a magnificent vase-shaped crown of foliage of very regular arrangement. They are of large size, sometimes attaining a length of as much as 5 ft., though usually about 3 ft., and are elegantly curved outwards. The petiole is short, and is dilated at the base, where it joins the stem, and there covered with nearly black scales, which are not torn or lacerated; on section, the petiole presents two oblong curved vascular bundles. The general form of the frond is broadly oblong, gradually diminishing in width at the base, and abruptly narrowed at the apex; it is divided into very numerous pinnae. These are all sessile; the lower ones are small and distant, usually turned downwards, and at the very base of the petiole become brown and scale-like; the main pinnae are 4 in. or 5 in. long, narrow, slightly curved towards the apex of the frond, and tapering to the point; they are very numerous, and vary considerably in proximity to one another, being usually just in contact but not unfrequently so closely placed that they overlap. Each pinna is simply cut into numerous, simple, oblong, blunt segments, which are not again divided or toothed. The general appearance of the whole frond is not unlike that of the common Male Fern, but it is a paler and brighter green. The venation of the segments of the pinna is remarkable in being quite simple, not forked or reticulated."

No mention is made of the deciduous character of the plant, a point of much importance from a cultural point of view. The notes regarding the plant's history, the derivation of the name, and the remarks on culture, will give additional interest to the work.

C. M.

Burnham Beeches.* "remnants of the sylvan past," and lately bought by the Corporation of London for the people, have been made the subject of a small volume by Mr. F. G. Heath. Woodcuts illustrating the spring, summer, autumn, and winter aspects of the Beeches are given, and the letterpress is full of interesting facts concerning them and Stoke Poges Church and graveyard, the last the resting place of the poet Gray.

* London: David Bogus. Hereford: Jakeman & Carver.

* "Burnham Beeches" London: Sampson Low, Murston, Searle, and Rivington.

NOTES OF THE WEEK.

New Pontederia.—The beautiful new aquatic in the Royal Botanic Society's Garden in Regent's Park, to which we made allusion some time ago, still continues to flower and grow so rapidly that it now covers half of the Victoria Regia tank. The flowers are also very freely produced, as many as fifty spikes having already appeared. The blossoms, though they possess exquisite beauty, unfortunately last in perfection but a day, a circumstance which somewhat detracts from its merits. It agrees with a specimen in the Kew Herbarium, the name of which has not yet been published.

The True Linden's Tillandsia (*T. Lindeni vera*).—There is now in flower at the Victoria and Paradise Nurseries, Holloway, the true and very scarce *T. Lindeni*, which is a superb plant for stove decoration. It is, in point of beauty, much superior to the kind generally grown under that name, and of which a coloured illustration was given at p. 466, Vol. X. of *THE GARDEN*. The foliage and habit of growth, however, are so similar that they are not easily distinguished when not in flower, as both have the leaves arranged in a tufted rosette-like manner and each leaf is conspicuously ribbed, deeply channelled, and has a gracefully curved habit. The flower stems of the true *T. Lindeni* are somewhat shorter and the flattened inflorescence is considerably broader. The membranous closely appressed bracts are of a rosy pink colour and form an almost oval expansion 4 in. long, whereas in the commoner kind the flattened portion is longer, narrower, the scales larger, more loosely arranged, and of a greenish hue. The flowers of both kinds are borne in much the same manner, and are nearly identical in colour, the true one perhaps being a shade or so darker in tint. Two such distinct plants certainly ought to receive separate specific names, though *T. Lindeni* is said to be a very variable plant. Mr. Williams's plant was deservedly awarded a first-class certificate at South Kensington on Tuesday last.

Zygopetalum Wendlandi.—This rare Orchid is now in flower in Messrs. Veitch's collection. Though not so showy as many of the terrestrial kinds it is a desirable sort to have in a collection on account of the delicious perfume emitted by the flowers, which are of a pale olive green, with a rather broad lip of a pale purple, bordered with white, and much crisped at the margin. It is a native of Costa Rica.

Lapageria rosea superba.—A fine plant of this beautiful variety planted against the back wall of an unheated frame is now an object of much attraction in Mr. Parker's nursery at Tooting. It has been doubted whether there exist any distinct varieties of this plant in cultivation, it being thought that any variation in the size or colour of the flower from those of the type is entirely due to culture. Whether this is so or not it is difficult to ascertain, but the example in question is decidedly superior in point of size and richness of colour to those of the ordinary form. Its superior beauty may certainly in this instance be owing to good culture, combined with a cool, moist, and somewhat shaded position, and it admirably exemplifies how the plant may be grown in an ordinary frame without the aid of artificial heat.

Dahlias at Swanley.—Mr. Cannell has now in flower in his nursery, besides a large collection of Dahlias of the ordinary florists' type, some remarkable kinds, which from their pure and simple beauty win numerous admirers. These are the original types from which have sprung the hosts of garden varieties. They include such species as *D. Cervantesi* and *D. coccinea*, with brilliant orange-scarlet flowers and yellow centres; *D. lutea* and *Paragon*, probably forms of *D. variabilis*, the former with pure yellow ray florets, the latter with the outer florets of a rich Plum colour, edged with red, as well as a yellow centre; *D. glabrata*, a dwarf and trailing kind with rather small flowers, but of a pleasing soft mauve tint. *D. Yuaiczi*, however, is the most interesting of all, as it shows an intermediate stage, as it were, between the original types and the perfect florist's flower. It has been aptly named the Cactus-flowering Dahlia, for there is nothing which it so much resembles as some of the common kinds of *Cereus*, except it be those of the Carolina Allspice Tree (*Calycanthus floridus*), as all the central florets are transformed into the strap-shaped kind, and are arranged not at all symmetrically. The colour is brilliant deep scarlet, which contrasts charmingly with the deep green foliage. The green-flowered kind, *D. viridiflora*, is a singular monstrosity not often met with. It is interesting, as it illustrates well the intimate connection between foliar and floral organs.—W. G.

Williams's Kidney Bean.—In an extensive trial of French Beans in the remarkably well-managed kitchen gardens at Penrhyn Castle, Mr. Speed found this to be the earliest and the hardiest. The fact is worth noting in connection with a vegetable where hardness and earliness are so great a gain.—V.

Yuccas in the Carse of Gowrie.—In the gardens of Sir P. M. Thriepeland, Bart., Fingask Castle, Carse of Gowrie, Perthshire, thirteen plants of *Yucca gloriosa* are now in flower, the flower spikes ranging from 7 ft. to 10 ft. in height. *Yucca filamentosa* and *flaccida* are also in flower in the same garden; one plant of the former bears five spikes of blossom, and the whole presents a very fine appearance.—BETA.

Aspen Leaves in Autumn.—I never anywhere saw trees more beautiful in colour than some groups of the Aspen by a roadside in Ireland in the middle of September (16th), the stems of the trees being clothed with small-leaved Ivy, and the leaves a fine deep claret red. The distant effect was very brilliant. It is not only American trees that are remarkable for their colour in autumn.—V.

Statice tatarica atro-sanguinea.—Most of the hardy kinds of Sea Lavenders are very desirable rockery or border flowers, and this is one of the best, as it is dwarf in habit and produces a profusion of its repeatedly-forked panicles, on which are arranged small red flowers surrounded by a cup-like, dry, membranous calyx, which, being white, forms a good contrast with the red flowers. The variety *atro-sanguinea* differs from the original in its flowers being of a deep blood red. It now forms a conspicuous ornament on the rockery in Mr. Stevens's garden at Byfleet.

Loasa volcanica.—This pretty species is now an object of much beauty in Mr. Joad's garden at Wimbledon, where it is growing in a cool airy house devoted entirely to similar half-hardy subjects, and where it flourishes with unusual vigour, having stems from 3 ft. to 4 ft. high, and producing its pretty white blossoms in profusion. The singular markings of the flower of this plant were illustrated by an engraving in *THE GARDEN* last year (p. 281, Vol. XIV.). *L. lateritia* is another handsome kind with curiously-shaped flowers of a brick-red colour. Mr. Joad has it growing against an outside wall.

Gladiolus Saundersi.—In several hardy plant collections this beautiful South African *Gladiolus* forms a most attractive feature, but it does not appear to be generally grown, though it is perfectly hardy and of very easy culture, only requiring to be planted in a sunny position in a light rich soil. *G. purpureo-auratus* is another very desirable species, though not so showy as the last, the flowers being of a creamy-white heavily blotched with vinous purple on the lower divisions. It is also a native of the Cape.

Ceanothus Arnoldi.—This is one of the finest of showy North American shrubs, and it is rendered all the more desirable by its flowering during the autumn, when the beauty of the other kinds is for the most part over. It bears long loose clusters of deep blue flowers, which last for a considerable time in perfection in a cut state, and it is therefore well adapted for cutting, and the list of blue flowered plants adapted for such purposes at this season is by no means long. It is quite hardy when planted against a wall in the Misses Christy's garden at Coombe Bank, Kingston Hill.

Lisianthus Russellianus.—In Mr. Joad's garden at Wimbledon we met with this old-fashioned plant the other day in flower. The singular beauty of its large cup-shaped blossoms at once suggests the question—Why is it not more generally grown? Its being reputedly difficult to manage is probably the reason, but it certainly well repays any amount of care that may be bestowed upon it. This and other beautiful Gentianworts were years ago amongst the most esteemed of garden favourites, and even now few plants can surpass them in point of beauty.

Pratia angulata.—This elegant trailing New Zealand plant forms a pretty object just now in Messrs. Veitch's nursery at Coombe Wood, where it is allowed to trail over half-buried stones. Masses of it growing in this way are studded with white flowers similar to those of the ordinary white bedding *Lobelia*s, and later in the season these will be succeeded by purple fleshy fruits, each about the size of large peas, rendering the plant an object of attraction for many weeks together. It is perfectly hardy and is a capital plant for rockwork. It is by no means new, though it may be better known by its synonyms *Lobelia littoralis*, *L. ilicifolia*, or *Pratia littoralis*.

Limnocharis Humboldti.—This pretty aquatic plant, which is seldom seen outside of a stove or greenhouse, succeeds admirably in the open air during summer at Tottenham, where it is now finely in flower. Its delicate pale yellow saucer-shaped blossoms have a very pretty appearance floating on the surface of the water mixed with its own and other foliage. It also grows and flowers profusely out of doors in a heated pond in Mr. Beaufoy's garden in Lambeth.

Late Gooseberries.—Good late Gooseberries are as welcome to many as Grapes, and I noticed lately in Penrhyn Castle Gardens a simple and excellent way of keeping them, which may be worth recording. A square of Warrington is covered with common netting

just a little higher than the head, so that one may walk about inside with ease: the netting is supported on rough uprights and laths across the whole very simply made. Where the net usually touches the ground—the weak place the birds so soon find out—is made quite safe in this case by a strip of close wire netting about 18 in. high ran all round. Not a bird can get in. This is a better and much simpler plan than that of the border and wall covered with wire netting sometimes seen.

Gunnera manicata and G. scabra.—The fruiting spikes and leaves of these noble plants shown by Mr. Green at South Kensington on Tuesday last, from Sir G. Macleay's garden at Pendell Court, conclusively established their distinctive characters beyond doubt even to those who have hitherto considered the two species synonymous. The much longer spikes and small flexible spikelets, combined with the decidedly reniform leaf, of *G. manicata* are entirely distinct from the much shorter spike and short, stiff spikelets of *G. scabra*, the better known kind. On account of the large size of its foliage the former is the more ornamental of the two, though *G. scabra* makes fine specimens, as may be seen by the superb example at Kew.

Seedling Begonias.—Amongst new unnamed varieties of Begonia now flowering in Mr. Cannell's nursery at Swanley, is a seedling from B. Pearcei, to which in manner of growth it bears a strong resemblance. It is, however, in all respects infinitely superior to that kind, the foliage attaining more noble proportions, being at the same time more richly and distinctly marked. The flowers are large, much larger than those of B. Pearcei, and of a rich orange yellow, contrasting finely with the deep rich hue of the foliage. It is altogether a striking novelty, and one that will undoubtedly be welcomed by the horticultural public. As seen growing at Swanley it gives to all other kinds an admirable and most effective contrast.—J. C.

Hail Storm Relief Fund.—The amount received or promised up to September 5th in aid of those who sustained losses by the hail storm which occurred on the morning of August 3rd is £498 13s. 10d.

The Manetti Rose amongst Evergreens.—Allusion has already been made in THE GARDEN to the desirability of relieving masses of evergreen shrubs of their monotony by planting amongst them flowering plants chosen for their suitability for the purpose. One of the very best subjects for naturalising amongst low-growing shrubs would be the Manetti Rose. Its vigorous, robust nature enables it to grow strongly amongst evergreens; indeed, it really appears to be quite at home in such situations. The flowers, though not large, are produced in great profusion, and are of a pleasing colour, forming a charming relief to the deep green foliage of the Rhododendron and Laurel. The idea of planting this Rose amongst evergreen shrubs has been suggested to me by seeing a large bush thus situated in Mr. Stevens's garden at Byfleet, and the effect was so good that I consider it worth recording. Most of your readers will have observed the charming effect produced by the common Brier in the lanes and hedgerows when surmounting the surrounding vegetation; it crowns it with irregular festoons and masses of bloom. Some such effect might be easily produced in our shrubberies, in the wild garden, or even amongst the clumps of evergreens which are to be found in the near vicinity of the dwelling, and which often sadly need that something should be introduced amongst them to relieve them of their sameness and formality.—JOHN CORNHILL.

Alternantheras.—Where carpet gardening is carried on, the bright colouring of Alternantheras is indispensable, but the past season has been most disastrous to them. As a rule, instead of filling up the small space allotted to them, they have dwindled away, and lack the brilliant colouring for which, when in a flourishing condition, they are prized. The only resource left is to lift them at once, and plant them in shallow boxes for providing cuttings next spring. They should be set in a frame or cool house at first, and when established removed to shelves near the glass, where a growing temperature is maintained, and if planted a little deeper in the soil, when lifted they will be found furnished with roots on each stem, and may be divided in spring, so as to form a large supply with a minimum of labour as regards propagation, as the smallest rooted pieces make excellent plants in a very short period.—J. GROOM.

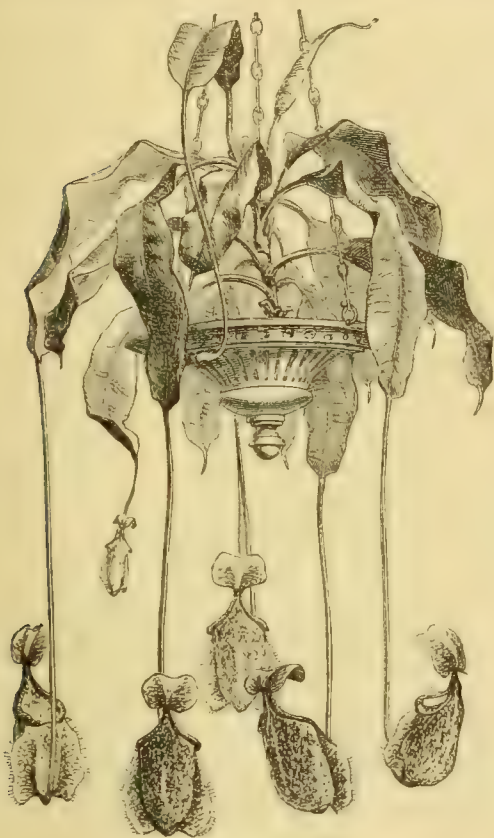
Ptelea trifoliata aurea.—Anything that in this rainy, sunless season gives brightness and life to ornamental grounds should be brought prominently into notice. Trees of this are here in the highest degree ornamental, being so beautifully golden as to be conspicuous even from long distances off. The foliage is ample and the growth free, properties which planters should not overlook.—T. SMITH, *Newry*.

THE INDOOR GARDEN.

PITCHER PLANTS (NEPENTHES).

WHEN first the handsomely marked Bornean species of these singular plants became sufficiently plentiful to be procurable, many people who had the convenience of a stove attempted their cultivation, but in more cases than otherwise with indifferent success, no doubt through comparatively little being known of the course of treatment which they require. A knowledge of the temperature and humidity of the atmosphere from whence they came was enough to point conclusively to the fact that without the means of, at all times in the year, being able to accommodate them with as much heat as most hot-region plants require, it is of little use attempting to grow them, as though they may be kept alive with less than this, they will never acquire the strength necessary to produce their curious pitcher-like leaves in the manner required, and without this there is little interest attached to them. Another and frequent reason through which the plants failed to form pitchers more than very sparingly, even when they grew in other ways freely, was either too much shading, or what amounts to much the same thing, being too far from the glass. For with only one exception, and that *N. lanata*, amongst all I have grown, I have found that if their heads are kept within a few inches of the glass they succeed best, having a strength and vigour in both root and top growth not attainable by any other means; and, as might naturally be supposed, they acquire a higher degree of colour when kept up close to the roof. Another matter of more importance with these plants than any others in cultivation, is never to injure the roots in potting, for if this should occur to an extent that would scarcely have any perceptible effect upon most things, it will in all probability cause their death, or bring about a condition little better than actual loss. I may here remark for the benefit of those who have not had any experience at all with them, that their roots are so fragile and dead looking, even when the plants are in every way healthy, that I have known them all pulled off under the impression that they were dead. They are very spare rooters, needing much less room than most things, and when repotting becomes requisite, there must be no attempt at shaking any of the old soil away. Consequently from the first it is necessary that the material should be such as is least likely to get into a decomposed state, for when it is close and soapy the roots cannot live in it, and from the large amount of water they always want it is liable to become sour, as when in active growth they need watering freely every day, and during the winter must be kept much more moist than the generality of plants. It will take, even under the most successful course of treatment, four or five years from the time of a young plant being first well rooted to its arriving at a size that will exhibit the full development of which it is capable; for, not until it has been twice headed back, and has again got furnished with from four to six shoots, each bearing their full complement of pitchers, has all that is desirable been attained; consequently it will be easily understood that the best and most lasting material that it is possible to find wherein to grow the plants will get so completely decomposed through the necessity of its being kept all but saturated with water, that it becomes like soft putty, in which condition the roots cannot exist; and, as already stated, they are so brittle that the old material cannot be got away in the ordinary manner, but can be effected by means of a painful of tepid water in which to plunge the ball with both hands under it, carefully moving the fingers so as to remove the exhausted matter. With a little time and patience in this way the roots can be wholly preserved in a perfectly clean state ready for transferring to a fresh pot with new soil; but on no account should there be any attempt at opening them out, as this will most likely end in their being much injured. The best kinds, such as *N. sanguinea*, *N. Rafflesiana*, and *N. lanata*, are more tender-rooted than the commoner species. About the end of February or March is the most suitable time in the year for either shifting on into larger pots those young and medium-sized plants that want more root-room; or for washing out, as above described, any older examples that need all new material. Pots proportionately so large as would be required for the generality of plants would not do for Nepenthes, as if too great a body of soil is present it directly gets sour. The largest specimens I ever had were grown in pots not more than 10 in. or 12 in. in diameter. The manner these plants are often allowed to run up straggling to a considerable height on a rafter or pillar is not the way for seeing them to the most advantage, as when the shoots of the best sorts have attained 4 ft. or 5 ft. in height, with some much less than this, the pitchers assume a character which is understood amongst growers as run-out; that is, they come devoid of their wing-like appendages and are very different in form from those which are produced by the leaves on the stems before they get such a height. The best position for them is hung up to the ridge of a span-roofed house standing ends north and south with their shoots

within 1 ft. or so of the glass, lowering the pots as the tops advance with a thin shade when the sun comes on them, but none at other times. If suspended alike up to the roof in a hip-roofed or lean-to structure facing south they will require a thicker shade in bright weather, but this will be easily seen, as if they get too much sun the leaves will assume a deep crimson colour instead of being green tinged or mottled with red, which latter is an evidence of the robust health essential to the full development of the pitchers that should be produced at the extremity of every leaf. When all the cultural conditions requisite for their well-being are present, even the leaves of *N. Rafflesiana*, and others of like habit, that are made slowly through the autumn and winter will, in the spring, when more heat is present, open the small pitchers formed during the dull season. I have been particular in describing somewhat in detail the appearance and necessary condition of the roots of the plants, as also the position in the house they require to be grown in, as well as their disposition to pitcher freely, for the presence of these in a large and highly coloured state is the certain test of the plants having all they want; in this condition, thus suspended where an opportunity



Nepenthes Rafflesiana as a basket plant.

exists of exhibiting to the full their most singular beauty and graceful habit, I think it will be admitted that there are none in the whole range of cultivated plants more generally interesting or more deserving of a place. For the help of those who feel inclined to grow them a few hints as to the temperature, air, and moisture requisite may be of use. The conditions necessary to grow Cucumbers well in the winter, viz., heat, humidity in the atmosphere, and very little direct admission of air, will be found such as to well suit *Nepenthes*; at the same time they will bear as much heat as any plants in existence. The air of the house must never be allowed to get dry, and for some twelve weeks in winter they will need no shade nor any air more than reaches them through the laps of the glass and other similar places of ingress. They should at this season be watered at the root every other day, with a syringing overhead through the spring and summer; water at the root and syringe every day, keeping them as warm day and night as the means at command will permit of, but not cooler than Cucumbers want to support free growth and continuous bearing, with less external air admitted directly upon them in the summer than Cucumbers will do with, and shade as already spoken of. A warm, moisture-laden atmosphere must always be present, and plenty of tepid

water to the roots is indispensable to their healthy existence. This obviously renders an abundance of drainage in the pots necessary. So far as insects go, the continuous use of the syringe keeps down all but brown scale, which, if it happens to get upon them, must be got rid of by sponging with clean water. They are too soft in texture for the use of any insecticide to be safe. The best kinds are—

***N. Rafflesiana*.**—Large, handsome pitchers, flask shaped and deeply spotted with dark brown; wings prominent and crested; the lid broad and ample. This, for its fine effect and general good qualities, has not yet been equalled. I have had it with pitchers that held over a pint fairly measured.

***N. Hookeri*.**—Nearly allied to the above. A compact-growing, smaller-pitchered species, similarly marked.

***N. sanguinea*.**—A very stout-growing, long and large-pitchered species, with intense sanguine colour in the upper portion of the pitchers; the wings are narrow; the lid erect and small. Very scarce and high-priced, and likely to remain so.

***N. lanata*.**—Another very stout-growing species of a remarkably pale yellowish-green shade; the pitchers, tinged with red, are large, long, and prominently furnished with hair-like appendages. This kind I have found does better hung a little further from the glass and shaded a little thicker than some of the others. In rarity and price it is similar to the last named.

***N. ampullacea picta*.**—A stout, small-growing species, with prettily spotted pitchers, produced not only singly from the extremities of the leaves, but in clusters from the stem.

***N. Sedeni*.**—A very pretty small-growing hybrid, with long pitchers, dilated at the base and thickly spotted with red.

***N. hybrida maculata*.**—Another smallish grower, with longish cylindrical, deeply streaked or spotted pitchers with ciliated wings. There is one peculiarity in both this and the last mentioned kind; that is in the pitchers coming almost wholly green and devoid of colour when the shoots attain above a certain height.

***N. Dominiana*.**—Another fine, free-growing hybrid, raised like so many others at Messrs. Veitch's, with good-sized, handsome, highly-marked pitchers.

***N. Courti*.**—Also a hybrid of Messrs. Veitch's, a very distinct and handsome dwarf variety, having large, deeply-crimson, spotted, flask-shaped pitchers.

***N. distillatoria*.**—A well-known, stout-growing kind, that produces its long green pitchers freely. There are several other species; but whether in a living state in Europe, I am not certain. Amongst them is the Rajah, an immense kind, represented to bear pitchers as large again as any yet in cultivation. When this makes its appearance no doubt it will produce a sensation.

It is a healthy sign of improved taste in horticulture to see beauty and singularity of form being appreciated as much as colour alone. That this is so, is evident from the increased sale for such plants as *Nepenthes*, the cultivators of which through the kingdom at one time might be counted on the fingers; but now those who grow them for sale have to propagate them by thousands to supply the demand.

The accompanying illustration represents a vigorous young plant of *N. Rafflesiana*, such as under good cultivation may be had at the end of the first year's growth, beginning with an ordinary "trade" sized plant.

T. BAINES.

PROPAGATION OF LAPAGERIAS.

MR. BAINES'S remarks on this subject (p. 248) simply amount to this, that never having himself grown or seen *Lapagerias* of the size and age described by me, as he confesses, he concludes that they cannot be produced; therefore, anything anybody may assert to the contrary must be wrong. Horticulture is not however bounded by the experience of any single individual, and assuredly not so in the present case, as I am able to prove. The plants which I described I saw and took note of on the spot, and I had before seen them on several occasions, from the time when they were layered till I wrote about them. The plants referred to by me as being layered last autumn twelvemonth I am personally sure about, but when in the nursery I asked if they were the previous year's plants, simply to make sure, as they had been moved out of the propagating house since I had seen them before to make room for this year's stock. But this is not all. I have a plant of white *Lapageria* in the gardens here which I procured from Handsworth last autumn as soon as it was lifted out of the propagating bed, where it was layered in the autumn of 1877, or less than two years ago. This plant I have had uncoiled to-day and counted the shoots, of which there are twelve, exclusive of a strong sucker pushing above the soil and a number of "leads" some inches in length. The longest of these shoots is about 11 ft. in length, other three are not much less, and a few only are under 2 ft. Six of the above number proceed direct from the stool

at the bottom, one about 2 in. above that, and the remainder from breaks higher up. This plant was not in existence in 1877, and this I assert on my own knowledge and responsibility, and the same can be amply verified if needful. I have been particular in stating the number of shoots, &c., as in a former communication Mr. Baines speaks of annual shoots, a term which I do not altogether comprehend. In a *Lapageria*, as in a Peach or a Vine, &c., I call a shoot a "shoot" whether it proceeds from the root or from a break on another branch, and I expect the general reader apprehends me in this sense. All help to extend the plant, and the subject under discussion is the getting up of *Lapagerias* quickly. Any method which accomplishes that is, I take it for granted, the best. I hope that Mr. Baines is therefore under no doubts now about my meaning. I can add no more. So far as I am aware Mr. Baines himself is the only one who still continues to treat *Lapagerias* upon the old method of propagating them from cuttings and eyes. J. S. W.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Tuberous Begonias as Basket Plants.—We find these *Begonias* to answer admirably when grown in hanging baskets; in fact, with us they both grow and bloom much more freely than when grown in pots. This is doubtless caused by the roots not being so much confined as in pots. The way in which we use them is as centre plants in the basket, employing some other plant to cover the outer surface. One basket planted in that way with a seedling variety very much like *Vesuvius* has seventy flowers now open, and the outer surface is covered with a dense mass of Harrison's Musk, which is also in full bloom. The pale yellow flowers of the Musk, and the scarlet blossoms of the *Begonia* produce a striking effect. We find it necessary to use baskets of a considerable size; ours are of a semi-circular shape, made of thin wire, and are about 11 in. in diameter at the top, and 10 in. in depth at the centre. The compost which we use is a mixture of equal parts loam, leaf soil, and fibrous peat.—H. J. C.

Draining Pots.—Judging from the elaborate directions for this operation which are usually given in *extenso* every time that the culture of pot plants is alluded to, one is led to think that some difficulty is found in doing it so as to completely guard against stoppage more or less complete. I am tempted, therefore, to submit for the consideration of more experienced gardeners than myself a plan which I have never once found to fail during the last three years, and which, moreover, is very expeditious and easy. It is to put one crock over the hole and then an inch more or less of Cocoa-nut fibre refuse. You can no more choke this than you could a sponge.—C. H. G.

Disa grandiflora.—Ireland would seem to be pre-eminently the country suitable for the culture of this superbly beautiful terrestrial Orchid. I well remember the examples of good culture grown by Mr. E. Culley, the gardener at Ferniehurst, and Sir William Marriot had in his garden at Down House, Blandford, numerous three-flowered stems, the individual flowers on which I never yet have seen surpassed in size and vivid colouring. An eight-flowered spike of the *superba* variety is well represented in Warner's "Select Orchids," but it is very rare to see all the blossoms on these many-flowered spikes in the same fresh and perfect condition as is there shown. I think Mr. F. W. Moore may fairly throw down the gauntlet to English growers with his nine-flowered spike. A week or two ago a private grower, near Purdysburn, Belfast, advertised two specimen plants for sale "one having twenty-one flower-spikes, the other sixteen flower-spikes, with from five to eight flowers on a spike, clean and healthy plants." In a London nursery I recently saw a large pan of this plant bearing over twenty spikes, but I am afraid that but few of these would produce five, let alone eight flowers. I saw the Glasnevin plants this season, and very fresh and healthy they were, with their great stout spikes leaning towards the sun in a way which recalled to mind the late Dr. Harvey's description of how this plant on Table Mountain grows beside a stream, its leaves being overshadowed by the foliage of *Restias*, but the flower-spikes shoot up through the screen and bathe in the sunshine above. One of the most distinct in colour of all *Disas* is *D. Barrelli*, an orange-scarlet form introduced by Mr. Bull a few years ago. If many-flowered spikes are desired then the *superba* variety must be obtained, for there are some two and three flowered varieties of the ordinary type which no amount of care and culture will cause to produce more than three flowers on a spike. In conclusion let me draw the attention of Orchid-loving amateurs to *Disa macrantha*, which bears flowers as large or larger than *D. grandiflora*, and its varieties vary in colour from nearly white to deep rosy-crimson. The plant is already introduced and has flowered in the collection of an English amateur.—B.

PLATE CXCVIII.

COLUMBINES.

The *Aquilegias* constitute a very interesting and beautiful genus of hardy herbaceous plants. They are easily cultivated and their graceful foliage and handsome flowers amply repay any attention that may be bestowed on them. *Aquilegia vulgaris*, the best known species, or some of its many varieties, is that universally cultivated in cottage gardens. There are single and double forms of it in many colours, but most frequently they are purple, reddish-purple, and rose coloured. The pure white variety of it, with large flowers and elegant pale green glaucous foliage, is the best. *Columbines* are very easily raised from seeds, and any particular variety may be increased by dividing the roots. They all succeed perfectly in any ordinary garden soil.

The annexed plate represents two North American species, viz., *A. cœrulea* and *A. chrysantha*, and the hybrid variety *A. cœrulea hybrida*, obtained by crossing the two sorts just named. The result of the cross has been the production of a very beautiful variety of a much more robust habit than that of *A. cœrulea*, with sepals of a delicate pale blue and petals yellow or primrose coloured. All of the above are hardy, but they do not succeed so well in open borders as they do in pots. Large numbers of them are grown at Loxford Hall for the decoration of the greenhouse and conservatory during the summer months; for culture in pots they are usually raised from seeds, and in order that good flowering plants may be obtained the following season the seeds should be sown in April, and as soon as the young plants are large enough to handle they should be pricked out, about a dozen together, in a 5-in. or 6-in. pot. When these have made some growth let them be potted off singly into small pots, repotting as the plants require it. It is not desirable to use large pots; indeed, I find that *Columbines* do not succeed so well in large pots as in those of moderate size; a 5-in. pot is quite large enough for *A. cœrulea*, while strong plants of *A. chrysantha* and *A. cœrulea hybrida* succeed best in 6-in. or 7-in. pots. While making their growth they may be kept in a cold frame or they may be placed out of doors in an open position. If they are in frames the glass lights must be removed whenever it is possible to do so.

The insect pests that chiefly attack the *Aquilegia* are red spider and green fly, but neither of these does much injury, and indeed they seldom appear at all if the plants receive no check, and are syringed daily with clean rain-water. Our plants are wintered in cold frames, and during the dull months they do not receive much water, merely enough to keep the soil moist. Allowing them to become rather dry and then giving them a good soaking of water is better than giving dribbles and often. I permit the plants to remain in the frame until the first flowers open, when they are transferred to the greenhouse. The rising flower-stems come in contact with the glass, and when that happens it is necessary to raise the lights a little.

The soil best adapted for them is rather clayey loam, to which should be added a fourth part of leaf-mould and nearly as much rotten manure and some sand. All the species and varieties of *Aquilegia* with which I am acquainted succeed under this treatment.

A. glandulosa is a very handsome species, but I cannot say that it has done well with us here. Plants of it make but little growth, and consequently they are frequently attacked by insects. This species succeeds well north of Aberdeen; probably the south of England is too dry and hot for it, as it has been introduced from the mountainous districts of Central Siberia. *A. alpina* is rather like it in its manner of growth under cultivation; it is also from a high mountainous district in Central Europe. The plant is dwarf and the flowers very pretty.

A. Skinneri is a very distinct species that should be grown in a select collection. It succeeds better in the open border than any other with which I am acquainted, except the common garden *Columbine* (*A. vulgaris*). It is almost as robust as *A. chrysantha* when grown in pots. I had a plant of this species in a 7-in. or 8-in. pot with nearly 100 flowers on it. The sepals are orange-scarlet, and the petals yellow. It flowers the earliest of all that I have named. *A. californica* resembles the last in colour; the flowers are, however, not quite so large, and the plant is taller and of a more straggling habit.

A. pyrenaica is another free-growing handsome species with purple sepals and bluish-purple petals. Its flowers are drooping and produced very freely.

Whether for the herbaceous border or for pot culture all the above may be freely recommended. Cut flowers of them are also very beautiful in vases. J. DOUGLAS.



GARDENING FOR THE WEEK.

Stove.

The generality of stove plants will now require a change in their treatment. The different species of *Medinilla*, the growth of which will be about matured, should now and through the winter receive no more water than is just sufficient to keep the leaves from flagging. All stock required to go more or less to rest must have further growth discouraged by a drier condition of the roots, as well as less moisture in the atmosphere, giving more air, and dispensing with shading altogether; but with this the mistake often committed in the cultivation of stove plants, of reducing the temperature too much, must not be made; it certainly checks growth, but is anything but the right means to bring about the maturing process essential to free-flowering next year. Along with this treatment I should not recommend syringing being altogether discontinued, for where this course is followed it often happens that red spider makes its appearance even so late in the season as this; but in the syringing now performed it is not well to resort to the slight daily sprinkling sometimes given, than which it is much better to syringe freely two or three times a week, getting well to the under sides of the leaves where spider and the small yellow thrips so troublesome in stoves generally conceal themselves.

Dipladenias.—To make the most of these, that is to grow them in a way that will afford flowers for cutting over the longest period of the year, they must have no further rest than that which they get through the slower growth that is made during the winter. I have kept the same plants on for a dozen years, as strong and healthy at the end of the time as they were at the commencement, with very little rest during the whole period. I simply allowed them to get quite dry about this season of the year, and then at once cut them back to within a few joints of where the shoots had been shortened to the year preceding; then in the course of ten days, when the buds had got prominent, but before they had broken into leaf, I turned them out of the pots, shaking nearly all the soil away, and reduced the roots to something like the condition of large *Dahlia* roots when lifted in the autumn, a considerable portion of the small fibres being thus cut away. I then repotted them in peat and sand, the former containing almost as much fibre as the material in which *Orchids* are potted, say *Cattleyas* or *Dendrobiums*. I have not found it possible to keep *Dipladenias* in a healthy thriving condition for any length of time without this yearly renewal of the whole of the soil, and I have also found it much better to carry out the operation at this season of the year than defer it until spring, for, although they break weakly at first, consequent upon the loss of root fibres, yet they have plenty of time to gain strength through the spring, and they bloom much earlier than when they are then removed. The pots used will not require in the first instance to be more than half the size of those which they have occupied during the summer whilst flowering, as towards February or March, when the roots have pretty well filled the soil, they can have another shift, which may be given without their receiving any check. They should be kept with their shoots close up to the roof, and at the warmest end of the house. Where there is only just sufficient warmth maintained to keep them alive during the winter, it would not be safe to pot them at all at this season.

Allamandas.—These may be had in flower almost all the year round by the use of several plants, encouraging some to make growth and flowers all through the latter months of the year, and drying one or two specimens off about this time. To effect this it is needful to let the soil get much drier than many plants would bear, allowing them to flag severely before any water is given, and then only administer enough to moisten the soil very slightly, for such persistent growers are they when in sufficient heat that if the soil is moistened to the extent that other plants need they scarcely can be induced to rest at all. From this time forward during the autumn months, plants to be thus early put to rest must have no more water given to the roots than will prevent the leaves from shrivelling whilst in a green state.

Clerodendrons.—The climbing species of these are so manageable that, where a sufficient number exists, they may be had in flower from March up to the middle of August. But this wide range in the time of their blooming, as a matter of course, necessitates their making growth at different periods; for, flowering as they do from the ripened wood, whatever cutting back is needed should be done immediately after blooming and before the plants start into growth. Those that flowered early will, in the course of a few weeks in most cases, have made as much growth as is necessary, when they may be prepared for resting by withholding water, much in the same way as in the case of *Allamandas*. The young shoots from the first having been all along kept trained close to the roof, the naturally hard character of the wood formed under such conditions is very

conducive to free-flowering. Plants that bloomed later will be proportionately later in making growth, which they may be kept on making up to the end of the year. I have found that this late growth will flower just as freely as that made earlier, provided that whilst it is being formed the points of the shoots are kept close up to the glass.

Streptocarpus biflorus and **S. Saundersi.**—Those who have a good stock of these plants, which individually occupy so little room, and bloom over such a lengthened period, possess two of the very best subjects having pale blue or lilac flowers for cutting in existence. I know of no arrangement of cut flowers, either bouquets, vases, or baskets, in which they are not alike effective; they stand better than most stove subjects, afford a good length of stalk, and combine well with almost any other colour of flower with which they may be associated. I have found them to do better in small, say 6-in. or 7-in. pots, than in larger ones, and when any that have formed a number of crowns begin to want more room than pots of the size just named, it is better to divide them. They will bear this now quite as well as in the spring, for their cultivation is in every way as easy as that of a *Gloxinia*, but, being evergreen, they keep on growing slowly all the year round, where sufficient warmth is present to enable them to do so. Independent of their use in a cut state, they are amongst the most effective small-growing plants for intermixing with other stove subjects set on side stages.

Gardenias.—If all the stock of these show a disposition to set their flowers, a portion may be removed to cooler quarters, giving those that are wanted to bloom earliest more or less heat, according to the time at which they are required. Where a sufficient stock is at command they may be had in flower the whole year round, by treating them so as to make growth at different times, and varying the management with different portions so as to bring them on in succession.

Achimenes, Gloxinias, and Caladiums.—The season has now arrived when most of these will require drying off, a process which should be done gradually, keeping all in sufficient warmth so as to admit of full development of the roots previous to the leaves dying quite off. This is best secured by withholding water by degrees, the plants during the interim being in a somewhat reduced temperature, but not lower than is necessary to induce a cessation of growth.

Forcing Houses or Pits.

In the erection of garden structures now there appears to be a general disposition to put up houses of a larger size than hitherto; and if they are kept only moderately large they have much to recommend them, as, whether for stove or medium-heat requiring plants, they do not fluctuate in temperature so quickly either in summer or winter as small houses; but for keeping up a supply of forced flowering plants through the winter, low, not over wide structures are much the best, regulating the length according to the amount of work to be done, with, if possible, a division, so as to keep one end cooler than the other. This latter arrangement should always be present where a large and continuous supply of cut flowers is wanted in winter, especially with a view to having as much variety as possible. Where means of this description do not exist a large reduction in the number of different subjects that can with advantage be used for the purpose is necessary; for some require much more heat than others will bear, and in forcing it is of the greatest importance that none are submitted to more heat than is necessary to bring them on into bloom in a way that admits of their flowers possessing a stout, sturdy character, without which they are of comparatively little value, either where the plants when in bloom are required as decorative objects or the flowers are wanted in a cut state, as when any have been in more heat than they like the bloom never lasts nearly so long, nor can be used without flagging to an extent that renders it of little use. I allude to this matter more particularly from the frequency with which places are met in which large quantities of flowers are expected all through the winter, and yet there are no means of forcing them with the exception of a single house wherein are grown permanently a large number of plants requiring a high temperature, or the structure may be principally filled with plants of an intermediate character needing less heat. Under such circumstances any attempt at forcing a promiscuous collection of the usual winter-flowering plants needing in themselves considerable difference of heat can never be more than partially successful. Where there happens to have been a couple of houses devoted to the cultivation of *Melons*, or something of a like character, these will generally be found just the places for the winter forcing under consideration, and they should at once be prepared for that purpose, and the plants to be forced should be immediately moved into them from the pits and other places which they have occupied during the summer. The whole stock ought to be at once placed where they can be kept sufficiently warm to prevent their suffering, which invariably

takes place when this class of plants is kept too cool, when the solar heat is so much on the decline and the nights get long and chilly. These winter-bloomers should be gone over and the best matured portion selected for bringing into flower first. These will ordinarily be found to consist of the older cut-back examples of *Poinsettia*, *Thysacanthus*, *Sericographis*, *Scutellaria Mocciniana*, *Euphorbia jacquiniæflora*, *Eranthemum*, *Plumbago rosea*, and others, that usually are better calculated to bloom before those that have been grown this season from cuttings, and which may be kept anywhere where enough warmth is at command to just keep them in a slow, gently-growing, healthy state. There is no season of the year when it is so necessary to keep the plants that are being brought into bloom with their heads near the glass as winter, for however light the structure they occupy may be, the closer they are to the roof the more satisfactory will be their blooming. Where there is a place at command that can be kept somewhat cooler as already described, such plants as tuberous *Begonias*, treated for late flowering, *Salvias*, *Pentas carnea*, and the like, may be transferred to it.

Guernsey Lily.—This very serviceable easily managed autumn-flowering plant is much less used than it deserves to be. Where a few dozens are grown and now placed in a brisk heat they will quickly throw up large heads of red flowers that have a handsome appearance on the plants which may be used when in bloom for the decoration of warm conservatories, and they are equally valuable in a cut state when mounted in the form of single flowers.

Brunsvigia Josephinæ.—This nearly allied plant is in every way quite equal to the above; there are two or three forms of it, all with red or scarlet flowers, that bloom through the autumn months with similar treatment, and they are far more beautiful and useful than many of the plants now more extensively grown.

Roman Hyacinths.—In the whole range of bulbs for forcing there is nothing more useful than these for the production of flowers towards the end of the year; although they do not afford the diversity of colour furnished by the larger growing Hyacinths, yet it is much better to grow a portion of them than to attempt the forcing of the larger flowered kinds very early, as the Roman varieties come in with little difficulty. They consist of white and blue, the blue being not quite so early as the white. They do not occupy much room—a 6-in. pot is sufficient for half-a-dozen bulbs—or they may be grown in pans a dozen or a score together, according to the size of the pans used. The soil, drainage, and general management do not differ from those employed in the case of ordinary Hyacinths.

T. BAINES.

Flower Garden.

Auriculas.—I have just read the remarks of "Brockhurst" (p. 234) on the Auricula. He has not had so much experience as Mr. Horner, but still if he finds the second week in June the best time for the neighbourhood of Manchester he would be wise to repeat at that time, and others similarly circumstanced may make a note of it. I do not quite understand what "Brockhurst" means by the "melancholy results of my early potting." All I said was that there was an autumn bloom, but that the latest potted plants showed the largest percentage. I also found last year that the July and August plants were not so well rooted as those potted earlier, but I have potted Auriculas at all seasons with good results. With many growers a great deal depends upon the time that can be spared for that operation. If more necessary work needed attention I would do that first; at the same time it is well to say what one considers to be the best time for potting. Our plants up to the present time have been behind a north wall, but they will be moved from there during this or next week. In the south it is necessary to place the frames behind a north wall. The ground on which they are to be set must be well sprinkled with dry lime to destroy slugs, and all the woodwork of the frames must be washed clean.

Carnations and Picotees.—These do not at present demand any more attention than to see they do not suffer from want of water. It is easy to neglect plants out-of-doors during a period of dry weather, but if allowed to become too dry considerable injury is the result; the small roots that are forming at their callus die, and the plants are permanently injured. See that pots containing layers are fully exposed in an open position, but still they should be protected from the strong gales which are often experienced at this season from the south-west.

Hollyhocks.—The weather which we are now having just suits the Hollyhock; the heavy dews at night quite saturate the flowers, and they are also drenched by occasional showers; but there is enough sunshine and drying winds to thoroughly dry them every day. It is continued wet for a few days that injures them most, causing the flowers to become mouldy. We would still put in any cuttings that can be obtained from the base of the plants; or eyes got from side growths from the main stem. Let all flowers with the seed-pods be removed, as they show decay if seed saving is not in-

tended. The best-named Hollyhocks have become rather scarce, therefore it is necessary to try to obtain as much stock as possible.

Pansies.—We are just now putting in cuttings of these, and it may be well to again remark that the thick, pithy flower-stems are useless for cuttings. The best are the slender growths that usually come up thickly from the base of the plants when the old stems have been pegged down or removed. These can be pulled out with plenty of small rootlets attached to them, and when carefully put into boxes in fine soil they speedily start into growth. A reddish-coloured aphid usually attacks them at this season, but it can be destroyed by dipping the cuttings in soapy water before they are inserted.

Polyanthuses.—The seeds were very late in ripening this year, but we were successful in saving a few good pods. The seed comes up in about a fortnight, and in another fortnight the young plants may be pricked out in boxes or pans. Beds of seedlings or named varieties should be kept quite free from weeds by stirring the surface of the ground occasionally with a Dutch hoe. Plants in pots are now well established and must be well attended to with water, removing any decaying leaves and occasionally stirring the surface soil. Red spider frequently attacks the under sides of the leaves and is not perceived until they begin to turn yellow. It can be destroyed as well as green fly by dipping the foliage in soapy water.

Pentstemons.—These are now very gay in herbaceous borders and they will remain so for a long time. Few of our hardy flowering plants continue to brave the wet and cold so long as these do; it is, however, necessary to remove the seed pods as the flowers fade, as they seriously cripple the energies of the plants. The stems must also be supported with sticks as they require them. Cuttings may be put in now if a large stock is required, but we prefer to wait until October.

J. DOUGLAS.

Indoor Fruit.

Vines.—The season, as far as weather is concerned, is of such an exceptional character that special means must be adopted to ensure the thorough ripening of both Grapes and wood. With us, all late grapes are colouring well, but, strange to say, the wood does not change proportionately to that beautiful nut-brown tint which indicates full maturity, therefore we are firing harder than usual in the hope of effecting by this means that which is otherwise unattainable through lack of sunshine. Vigorous young vines cannot possibly mature their wood without a free allowance of artificial heat, and of course the stronger the growth the more difficult they are to ripen; no time should therefore be lost in applying such heat as shall ensure full ripeness at the earliest period. Free ventilation should ever accompany the application of fire-heat that is used for ripening the wood, and the growths should now be kept stopped, but the principal foliage should be sacredly preserved and left to die off naturally. Do not allow inside borders to want water, even though the Grapes are ripe, if there is any fear of their shrivelling from want of it; better sacrifice a few by damp than that this should happen. After watering, either cover the border with mats or dry straw, both for the sake of neatness and in order to prevent rapid evaporation. The earliest Vines, on which the Grapes are to ripen in April and May, should be pruned at once, the borders renovated, and the houses cleaned, or if they are to be painted the present is the best time to do it. Outside borders of such Vineries should now be protected from further rains, either by means of shutters, tarpaulin, or thatching.

Peaches and Nectarines.—In early and mid-season houses, lift and replant any trees that are not satisfactory, either from growing too vigorously, or not sufficiently so. With careful manipulation such lifting will not militate against fruit production next season, but there must be no unnecessary mutilation of the roots, and especially all the fine fibrous roots must be preserved. The drainage should have particular attention, as the remotest approach to stagnation is soon resented by the trees. The best soil is a calcareous loam of medium texture, intermixed with a small proportion of charcoal and lime scraps; should it be very heavy, then add a larger proportion of both charcoal and lime scraps, making the whole moderately firm in order that a certain amount of resistance may be encountered by the roots, a condition which induces the production of lateral rootlets. Late houses, as soon as cleared of fruit, should have all shoots thinned out that are not required for the furnishing of the trees or for next year's fruiting, the space thus gained being an invaluable aid to the ripening of the wood. Still syringe the trees, to keep the foliage clean to the last, and let inside borders be as freely supplied with water as during the earlier stages of growth.

Melons.—Increased artificial heat both top and bottom will now be necessary to keep these in vigour, and the fruit must have the fullest exposure to light by tying aside any foliage that intercepts it. Though less water will now be necessary than earlier in the

season, avoid dryness, which is a sure precursor of loss of foliage and consequent insipidity of fruit. Free ventilation, full exposure to light, and an equable bottom heat never fail to ensure fruit of high flavour. The blooms of late plants should be fertilised, and as the advanced season renders this crop somewhat uncertain it will not do to wait for a number of flowers to be ready to fertilise at the same time; on the contrary, the first that appears should be set. Keep the shoots thin, and those producing fruit should be stopped at the first joint beyond the fruit. As soon as all are set encourage quick growth by closing the house very early. With sun-heat, the temperature may advantageously be raised to 90° for an hour or two.—W. W.

Kitchen Garden.

It really appears as if there is to be no cessation with regard to the unsettled weather that has so long prevailed, and which has rendered all garden operations difficult to perform, and which still taxes both our patience and time to the utmost as regards any endeavour to keep down weeds and to get the ground well cropped for the winter. There is also, I fear, another and greater trouble in store for us, and that is, the growth made by all winter vegetables and salads is necessarily of so sappy a description, without sun to harden the tissues, that in the event of a winter of but even the average type setting in they are sure to suffer greatly, if, indeed, they survive at all. With such gloomy prospects the forcing of vegetables should have extra and early attention. Tomatoes do so well in pots, and accommodate themselves to almost any temperature above actual freezing up to 70°, that in most gardens a place may be found for a few to be kept growing throughout the winter. Where there are heated pits or spare spaces in Cucumber and Pine pits, French Beans are easily produced, and a good quantity should be got in at once; for this purpose there is no better kind than Osborn's, though that fine variety Canadian Wonder forces at this early season tolerably well, but it requires more space than Osborn's. Mushrooms and Cucumbers will, as a matter of course, be in great request, and provision should be made for their production accordingly. Seakale is yet in vigorous growth, but the first sharp frost will stop that, when a first batch of roots may be lifted for forcing. Due allowance, both as to produce and time required for forcing, must be made for immaturity of the crowns. In order to induce rest to the crowns of Asparagus that are intended for forcing earliest, cut away the stems to the ground line; these are still in such active growth that no attempt at forcing should be made for at least another month. Lettuces and Endive intended for winter use should have the protection of frames whenever frost seems imminent, for in order to prevent decay the first frost must be avoided. Parsley and such other herbs as are in daily request throughout the winter should have immediate attention; the former, as a rule, winters safely on a dry south border, but a frame placed over it ensures its safety in all weathers. Basil, Tarragon, Balm, and Mint, are all easily produced in any warm position in houses or pits, and if planted in pots or boxes, they can be conveniently removed as required from one place to another. On fine days, and when the leaves are dry, tie up Endive and Lettuces to blanch, and all herbs not yet cut for drying should in like manner receive attention. Celery should also be earthed up under the same conditions as to weather, but previously remove all outside suckers, and prevent the soil from getting into the centres of the plants, either by tying or holding the stems closely together whilst the soil is being placed around them. Winter Spinach should be well thinned out, certainly to at least a foot plant from plant. Canker is sometimes very injurious to this crop, and with the view of warding it off there is nothing better than keeping the surface soil loose, and taking the precaution to sow only on well drained ground. Continue to earth up Broccoli, Sprouts, Cabbages, &c., as occasion requires, and let no opportunity slip as regards killing weeds. Cauliflowers may require to have their leaves bent over their heads to evade frost, which may now occur at any time. W. W.

Extracts from my Diary.—September 23 to 29.

FLOWERS.—Potting old plants of Iresine Lindeni for stock, and Pelargoniums for winter blooming. Potting Fuchsias and tying Chrysanthemums. Potting Ageratums for stock. Moving Pelargoniums from cold pit to a house prepared for them. Re-arranging plant houses.

FRUIT.—Cutting out shanked berries from Muscat and Trebbiano Grapes. Removing lateral and superfluous shoots from Vines in late Vinery to admit light. Placing boards under Melons swelling. Gathering Cockle Pippin Apples, and storing them in fruit room. Trenching up north border, preparatory to planting Gooseberries for late use. Gathering Bedfordshire Foundling Apples and Winesour Plums. Gathering King of the Pippins, Blenheim Orange, Court Pendu Plat, Round Winter Nonsuch, and Claygate Pearmain Apples. Gathering Marie Louise Pears.

VEGETABLES.—Tying winter Cucumbers. Sorting Paterson's Victoria Potatoes in pits, and reclamping those for eating. Gathering Scarlet Runners. Earthing up Celery requiring that attention. Tying and stopping winter Cucumbers, and top-dressing them with rich compost. Planting Daniels' Defiance Cabbage on well-manured ground. Top-dressing Tomatoes growing in houses for fruiting in winter, and stopping shoots at each bunch of fruit.—R. GILBERT.

THE KITCHEN GARDEN.

MAJOR HALLETT'S PLAN OF STAMPING OUT THE POTATO DISEASE.

ASSUMING the letter published in the *Times* lately by Major Hallett on the Potato disease to contain an accurate statement of facts, I think the subject should not be lost sight of. In his letter, Major Hallett says, omitting some details—"Disease is as much hereditary in plants as it is in man. So long as unhealthy seed shall be planted so long will our Potato crops be specially liable to disease, just as in like manner a person of weak constitution at once succumbs to surrounding conditions which do not affect the strong and healthy. Acting upon this view, I have for years carefully selected my Potatoes for seed, and upon the assumption that the disease reaches the Potato through the haulm, have always rejected the whole of the produce of any plant which represented any appearance of disease; and although this may have been manifested on only one of its forty or fifty Potatoes, and even on this but slightly, I have rejected them all as of 'tainted blood.' The practical result has been an almost complete immunity from the disease."

In the *Times* of February 2, 1877, Dr. B. W. Richardson is reported as having said, "It took three or four generations to wipe out the hereditary tendency to disease." If this can be effected in the case of man, where we do not possess the advantages of the stamping-out system, then twelve generations may have gone a long way towards wiping out in my Potatoes such hereditary tendency to disease; and by continuing the annual selections I hope and believe that not only will this be fully "wiped out," but that the very opposite, hereditary tendency to health, will be firmly established. The value of each successive selection, even the latest, was most strikingly exemplified this year of almost universal blight when digging up the crop. Of the Kidneys, every one of the Potatoes descended from plant "A, 1878," was absolutely free from disease, while only 2 ft. off, in the very first row of the descendants of "B, 1878," there were found four diseased tubers, and in the other rows six more; but this was only ten in a quantity sufficient to plant one-sixth of an acre, our consumption of each variety. Well might my man exclaim, "There can't be much doubt about selection after this." So, too, with the Regents in another part of the garden: the whole of the produce from "A, 1878" was perfectly healthy; of that from "B, 1878," only one plant affected in one of its tubers only, and that but slightly.

What I attach most importance to are the results of Major Hallett's experiments, which were carried out at his place near Brighton. If he has succeeded in stamping the disease out of his own crops, or nearly so, and in the midst of disease-affected plantations, and is prepared to vouch for the fact, his statements deserve more than a passing notice. I would suggest that his experiments be extended, under the auspices of the Royal Agricultural Society, for example, which has already practically interested itself in the subject of the Potato disease. It would be desirable that the seed from the Major's selected stock be tried in different parts of the country on different soils. I believe I am not mistaken in saying that the "selection" experiment has been suggested if not tried before, but never carried on for a sufficiently long period to test its value, and cultivators have contented themselves with selecting sound, or apparently sound, tubers only; but it would appear from Major Hallett's letter, that he also rejected tubers from plants "which represented any appearance of the disease," thus making assurance doubly sure; and that his experiments have extended over a period of about twelve years. J. S. W.

The Centennial Potato.—A curious circumstance regarding this Potato occurred here which some of the readers of THE GARDEN may possibly be able to explain. About a dozen tubers were cut in halves in spring, and planted side by side with some twenty or more other kinds, all of which latter came up well and grew rapidly, whilst the Centennial had not produced the slightest signs of growth up to the middle of August, at which time on being examined the sets were found to be perfectly hardy and sound, but the eyes did not show the slightest symptoms of growing. Does this Potato behave in this way elsewhere?—K. LANGLEY.

POTATOES EXEMPT FROM DISEASE.

THE comparative immunity from disease of certain kinds of Potatoes is this year a matter of the first importance. It would be difficult to recall a season so fraught with mischief to the Potato crop as this present one has been, and Potato growers would do us great service if they would give the names of some half-dozen or more sorts, if they have as many, that stand out beyond all others comparatively clean and healthy. The phrase "disease proof" is perchance a misnomer as applied to any kind, but some kinds are more or less disease-resisting. We have through upwards of thirty years' experience become so accustomed to losses in the crop year after year that we think ourselves fortunate if not more than one-third of the crop is rotten. If, however, there are any kinds that do not this year, and as a rule in other years, show as much disease as that, indeed have only one-fourth or less affected, or perhaps so few diseased as to be unworthy of notice, then these may well claim to be regarded as disease-resisting. My own experience this year extends over some eighty kinds, and generally is more favourable than is that of gardeners who grow their Potatoes in rich garden soil; the richer the soil, as a rule, the more destructive the disease, and as a consequence, the less the soil is enriched the less are Potatoes diseased. Thus my own sorts grown in the open field in fairly open, porous land, and with plenty of space between them, have had no manure applied to the soil for two years other than patent manures, and although these will induce growth in the plant, such bad results rarely follow as are seen where raw manures are used. On this land I have had much less disease than many others have found, but there has perhaps been less size; still, this year's crops varying from 40 lb. to 50 lb., good, clean tubers, on rows 50 ft. in length, have left little to complain of. My cleanest kind has been *Magnum Bonum*, of which there has not been, so far as lifted, a single diseased tuber. Next came *Advance*, a seedling, so said, from the *Victoria*, but bearing a close resemblance to *King of Potatoes*, of which I anticipate it will prove to be but a fine form. *King of Potatoes* was also very good indeed, the proportion of disease being about one-tenth. In the same category must be classed the new purple kind *Vicar of Laleham*, a seedling from the *Victoria*, and a remarkably fine cropper. In poor field land without manure this is throwing a pure, clean tuber sample of good quality. *Early Purple*, a longish, purple Potato, has also proved comparatively clean and good. Then came *Triumph*, a round, red, American sort, not large at any time, and perhaps to that feature is owing some of its immunity. The *Early Rose* was very fairly good, as also was *Trophy*; this latter throwing a fine crop, but the quality is indifferent. *International* gave a great crop of medium-sized tubers with but few diseased; so also did *Schoolmaster*, and *Radstock Beauty*, a Potato fit for any table, was but moderately hurt. The best and cleanest crop of all the *Ashleaf* family was given by *Lemon Kidney*, not a score of tubers out of a bushel being diseased. These are enough to name, although others could be specified as fairly good. Should others give their experience of sorts, and out of their many kinds give a list of a dozen that have stood with them best, it will doubtless be found that experiences of sorts vary very much; still any one or two sorts getting frequent favourable mention should specially deserve more extended cultivation. As a rule, I find sorts having stiff, erect haulm the least affected, and further believe that this feature is one of great importance to the future of the Potato. I think it will be found that the more woody the plant stems, the less able is the disease to travel to the root-tubers.

A. D.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Forwarding Globe Artichokes in Pots.—What an advantage it has been to those who have had the means of preserving a few old roots of *Globe Artichokes* in pots or boxes somewhere under glass this season. Although in most situations *Globe Artichokes* are hardly enough to stand our climate, yet when an exceptionally severe winter comes, all the growth near the surface is cut off, and late in spring when the plants struggle through, they have hardly strength enough to bear fine heads, and they are so late in addition as to detract much from the usefulness of the crop. Early in November is a good time to lift a few roots, or at least some time before frost comes. They may be placed anywhere in a cool house where frost does not enter, and have sufficient water given them to keep the roots just moist. Early in April the roots may be divided and planted out. I grant the crop in all seasons may not be superior or, indeed, much earlier than those left in the ground; but then it will be so convenient to have *Artichokes* in a difficult season when they are scarce everywhere. Another way is to plant a few strong suckers in single pots, and grow them on steadily through the winter near the glass in a house where a little fire-heat is used, shifting into larger pots as required, and hardening off and planting out finally in April,

or when the weather appears settled and suitable. *Globe Artichokes* must be well fed; their large succulent leaves and stems require a good deal of support, and not only is a deep and well-enriched soil necessary, but mulching and watering should not be neglected.—E. H.

Cucumber Disease.—Early in the spring this year I made a hot-bed consisting of stable manure on which I placed a frame for Cucumbers. Some of my *Cucumber* seed failing I got a couple of plants from a friend to fill the frame. I had heard that my friend had the *Cucumber* disease in his house these last two years, but not knowing the character of such a disease I did not take much notice of the matter at the time, but I knew something about it when too late. The plants went on well, considering the bad dull weather which we have had, till I cut two or three fruit; and then I saw the *Cucumber* disease for the first time, a circumstance that will make me very careful in future where I get my *Cucumber* plants from. I have not had a fruit out of my frame since. I also sowed some *Ridge Cucumber* seed in the same frame, and in order to harden the young plants off I placed them under a handglass, on a bed which I made up for *Vegetable Marrows* some 20 ft. from the *Cucumber* bed. After a time the *Ridge Cucumbers* were planted out, but only to share the same fate as those in the frame. I have not had a fruit from them, and they look as if they had been scorched by fire and battered by hail, and now the disease is appearing in the *Vegetable Marrows* on the same bed on which I placed the *Ridge Cucumbers* to harden. The *Vegetable Marrows* nearest the handglass that contained the *Ridge Cucumbers* are much more diseased than elsewhere, the former gumming like the *Cucumbers*. Having no *Cucumbers* for the table or for pickling and no *Marrows* for the kitchen is a great loss. For all these disasters I fear there is no cure. I have since made another bed about 40 yds. from the first, and have the *Telegraph* kind coming into bearing on it raised from seeds obtained miles away, and I hope to be able to cut a few fruit out of this frame before the cold weather sets in. At the present time they look well and healthy. I may add that I have not destroyed the first lot, as I want to see whether or not the disease can be carried about as I read in the *GARDEN* it can be. Since writing the above I now notice the same plague in my second bed, so all is over with my *Cucumbers* this year.—R. G.

Hathaway's Excelsior Tomato.—This is a very useful variety, being large in size, smooth and even in outline, and a good cropper. We have grown it largely under glass this year, as the outdoor culture of *Tomatoes* is simply labour lost, the disease attacking them before they attain any useful size. This year we had those under glass severely attacked during the early part of the season, when the weather was wet and dull, but since clearer skies have prevailed the same plants have grown away perfectly clean and healthy, and are now ripening good crops. It is therefore advisable to grow so useful and remunerative a crop in a house or pit exclusively devoted to it when a dry, buoyant atmosphere can be maintained, as even under glass there is no exemption from disease if there be much atmospheric moisture. Fortunately, the *Tomato* flourishes well under rather excessively dry conditions, or such as would be sure to induce red spider on many plants and fruits, and is even more fruitful than when grown more luxuriantly, as, like the *Fig*, its strong-rooting propensity enables it to live and grow vigorously where tender-rooted subjects would fail. I have no doubt that *Tomatoes* would be a more remunerative crop to grow for market than *Cucumbers*, as, since outdoor crops of them have failed, those ripened under glass realise good prices. After trying several sorts I think there are few that will surpass *Hathaway's Excelsior*, either for colour, size, or flavour.—J. GROOM, *Linton Park, Maidstone*.

Preparing Broccoli for Winter.—The damp and almost sunless season which we have had has produced rapid growth in the *Brassica* tribe to which a check must at once be given, so as to ripen or harden them against severe weather, more particularly *Broccoli*, which forms our principal vegetable for the beginning and end of the year. It is a good plan to run the spade 9 in. or 10 in. deep into the soil down each side of the plants. About 6 in. from their stems cut off a portion of their roots, thereby inducing the plants to form sturdy growth, which is essential to the production of good heads and sound keeping during the next month. *Broccoli* should be layered by taking the soil out a spade deep up the side of the row, dropping the plant into the opening with the head to the north. Any loose manure from the surface of the *Vine* borders, or *Grass* cut from the lawn, thrown in amongst the roots before filling up with soil, induces them to strike quickly into the fresh material, thus adding strength to the plants and size to the heads. If a sheltered position in any other part of the garden, open to the south, is at liberty, they may be removed to it on a hand-barrow, and if the roots have been cut down the sides with a spade, as alluded to above, a fortnight or so before

lifting, a too severe check is prevented, which otherwise might cause the outside leaves to turn yellow and weaken the plants. In severe weather some dry litter or Bracken placed amongst the plants afford a good protection for the heads.—JAMES SMITH, *Waterdale*.

ORNAMENTAL KALES.

THERE are now so many varieties of vegetables, salad plants, and herbs that are at once both useful and ornamental that for any one so inclined it requires the exercise of but little ingenuity to make a kitchen garden as full of interest from a decorative point of view as any other department of a garden. As dark green bordering plants,

indeed is, superlatively hardy. Fig. 4 is a more robust and taller grower, partaking, both in style of growth and foliage, of the character of the Brussels Sprout, and is of equal value as a winter Green. W. H.

ASPARAGUS CULTURE.

(Continued from p. 250.)

DIFFERENT METHODS OF GROWING ASPARAGUS.

As we have already said, Asparagus may be grown in a variety of ways—in square or oblong beds, or in borders under a wall, in separate stools, or isolated plots.



Fig. 1.—Curled Dwarf Kale.



Fig. 4.—Moellier's Kale.



Fig. 3.—Palm Kale.



Fig. 2.—Sprouting Kale.

there are Parsley-curl'd Endive and Lettuces, whilst as secondary contrast lines there are the bronze-leaved Beets, and green Fern-like foliage in Carrots, whilst in the large variety of Kales or Borecoles—green, coloured, and parti-coloured—there is a rich store of suitable material for ornamentation. The annexed illustrations represent varieties, not only useful in a decorative point of view, but profitable winter esculents. Fig. 1 is the ordinary dwarf Scotch Kale, so well known and appreciated by everybody. Fig. 2 is not so well known, but is of a far more profitable character, producing in profusion sprouts of the most delicious flavour throughout the hardest winter. In fig. 3 we have simply a tall and but slightly curled variety of Scotch Kale, and probably a selection from what is generally termed Cottagers' Kale, a variety that is much grown in the Northern Counties of England, and which is considered to be, and

In Square Beds.—This is the mode of culture which has just been described, and consists in opening a number of trenches side by side with each other at a distance of from 3 ft. 3 in. to 4 ft. 9 in., according to circumstances.

In Oblong Beds.—We have also spoken of this method of culture, which consists in planting two rows of Asparagus side by side, leaving a wide empty space between them, so that the roots which spread out very widely may not become entangled or live at the expense of each other.

Wall Borders.—We may grow Asparagus on wall borders, in lines between the Vines in a Vineyard, or between

espaliers. With a northern exposure we shall get a late crop, with a southern an early one.

Separate Stools.—We may also grow Asparagus in single stools in Vineyards in corners, in fact, wherever a piece of ground is to be found upon which the sun shines. Asparagus grown thus continues to bear for a long time, and in no way yields to that grown in square plots. Most of the Argenteuil Asparagus is grown in isolated stools in Vineyards.

In Clumps.—In newly-planted orchards we may plant between each tree a clump of eight stools, which will yield good crops for fifteen years. The manure and cultivation given to the Asparagus helps the neighbouring trees. Thus we may increase our fruit crop and grow Asparagus at the same time.

Each of these methods has its peculiar advantages. Planting in the open square bed allows us to choose the most favourable situation for growing the plant without disturbing the harmony of our ordinary kitchen garden, but the yield is not so good and the plantation does not last so long. In the long-bed system we may grow Asparagus nearly anywhere, and thus destroy the symmetry of our kitchen garden, injure the neighbouring crops, and increase the difficulty of gathering, by reason of the large extent of ground to be traversed by the labourer. If we plant in wall borders we often utilise ground which otherwise would be very often lost, but with a southern aspect we must take care to plant at a distance of at least 10 in. from the foot of the wall. With a northern, western, or eastern aspect we can plant in the plot at a less distance. In the isolated stool system we may obtain very fair results in well ventilated situations. In Vineyards, for instance, we may obtain large crops of Asparagus of excellent quality. It is by adopting this method of Asparagus growing that the Argenteuil growers obtain such fine results both in the way of the natural product and the pocket. These isolated stools cost but little to establish, and last for a long time. We have seen stools twenty-eight years old, which still gave excellent crops. On the clump system, when planted amongst tall trees, we may gain great advantages from this mode of culture. As yet it has been but little practised, but we strongly recommend it, on account of the excellent results which it yields. It may easily be conceived that if we grow Asparagus at the foot of a tree, digging, hoeing, and weeding are unnecessary, and that these isolated clumps will furnish large and good crops for many years, especially in those places which have been dug deeply for the reception of trees, or where new soil and manure have been laid down for the same purpose, and that without in any way injuring the neighbouring trees, which themselves in turn profit by the care bestowed on the Asparagus, as well as by the manure with which it is dressed from time to time.

COST AND YIELD OF A HECTARE ($2\frac{1}{2}$ ACRES) PLANTED WITH ASPARAGUS AT ARGENTEUIL.

Opening the trenches, making the mounds, planting the stools at the rate of 100 stools per working day, at 4s. 2d., or £2 per thousand for 10,000 stools ...	£20
10,000 stools at £3 12s. per 1000 ...	36
Carriage and sundries, say ...	4
	£60

By spreading this sum over twenty years, the average life of a plantation, we have per annum ...	£3
Rent of one hectare of land at 2s. 4½d. per acre, say ...	12
Labour, one hectare, say ...	14
Manure, per annum ...	14

Cutting, pulling, bundling, carriage to Paris market	40
Sundries, say ...	3
	£86

The medium yield of each stool is half a bundle, which for 10,000 stools would be 5000 bundles, at say 1s. 7½d. ...	£400
Deduct for bad crops, damage, &c. ...	60
	£340
Expenses ...	86
	£254

counting twenty years of full crops, for although we only begin to pull at the end of three years, the stool is just as likely to last twenty-four years as twenty. We have also not taken into consideration the choice early bundles, which often sell for 12s. or 15s. at the beginning of the season instead of 1s. 7½d., besides which we must deduct the expenses of gathering for the first three years.

COMPARISON BETWEEN DUTCH & ARGENTEUIL ASPARAGUS.

A great number of persons do not yet seem to properly understand the difference between the Argenteuil Asparagus and that of other celebrated localities. The following are some comparative calculations which will enable them to judge of the merits of the case. The experiments of which the figures are the outcome were made on thirty-five stools of the same age of each variety. The plants were reared in the same soil and were seven years old, the gatherings being made under precisely the same conditions.

ARGENTEUIL ASPARAGUS.

(Early.)

First gathering made April 3. Produce of a single stool during forty-two days—29 heads, weighing 1540 grs. (say 3 lb. 6½ oz.). Prices at the market rate in the Paris market.

1540 grs. (say 3 lb. 6½ oz.) represents half a bundle, a good bundle weighing from 3 kilos, to 3 kilos. 200 (say 6½ lb. to 6¾ lb.). Amongst these heads there were ten small, eleven medium, and eight large, which taken at the ordinary price would have sold at the rate of 3 fr. (2s. 4¼d.) per bundle, or 1 fr. 50 c. (1s. 2½d.); but as the latter do not fetch so much as the former, this price must be reduced to 1 fr. (9½d.)

DUTCH ASPARAGUS.

First gathering made April 20.

Produce of a stool during forty-two days—24 heads, weighing 605 grs. (say 1 lb. 5½ oz.). Price at the market rate in the Paris market.

605 grs. (say 1 lb. 5½ oz.) represents about the fifth of an ordinary bundle of from 3 kilos, to 3 kilos. 200 (say 6½ lb. to 6¾ lb.). The heads were none of them very large. There were eight very small, ten medium, and six somewhat large. The ordinary price for a similar quality would be 1 fr. 50 c. per bundle (say 1s. 2½d.); the value of the crop would therefore be 30 c. (3d.).

Wishing to push our experiments farther, we undertook an investigation into the quantity of eatable substance contained in each variety, with the following result. We first of all weighed out 1400 grammes (3 lb.) of Argenteuil and Dutch Asparagus, that is to say,

ARGENTEUIL ASPARAGUS.	DUTCH ASPARAGUS.
Grammes.	Grammes.
Undressed ... 1400 (3 lb.)	Undressed ... 1400 (3 lb.)
After being peeled, they only weighed ... 1070 (2-35 lb.)	After being peeled, they only weighed ... 1050 (2-31 lb.)
Cooked, they weighed ... 1050 (2-31 lb.)	Cooked, they weighed ... 1030 (2-26 lb.)
The Argenteuil Asparagus when served at table and eaten left a residue of uneatable stalk weighing 400 grammes (0-88 lb.), that is to say, the eatable portion of the 1400 grammes of raw vegetable amounted to close on 1000 grammes or 2-2 lb.	The Dutch Asparagus when served at table and eaten left a residue of uneatable stalk weighing 704 grammes (1-54 lb.), that is to say, the eatable part of the 1400 grammes of raw vegetable only amounted to 696 grammes or 1-53 lb.
This variety took only twelve minutes to cook, and was tender, sweet, and pleasant to the taste.	This variety took seventeen minutes to cook, and was somewhat woody and very bitter.

These results show that there is really no comparison in point of merit between the Argenteuil and Dutch varieties. In point of quantity there is a difference of two-thirds in favour of the former *Asparagus*. Again, in point of price the advantage also rests with the Argenteuil variety, that is to say, 1 franc (about 9½d.) against 30 cents (about 3d.). As for the eatable portion, there is more than one-third more in the Argenteuil variety. Those who grow to sell will have little difficulty in deciding upon which variety to plant. The amateur also who prefers quality to quantity will hesitate still less, as the Argenteuil variety is sweeter and more succulent than the Dutch, which has a disagreeably bitter flavour. To this must be added the fact that the Dutch *Asparagus* requires a richer soil and double the quantity of manure as compared with the Argenteuil variety.

COMPARISON BETWEEN A PLANTATION MADE WITH STOOLS OF A YEAR OLD AND ANOTHER MADE WITH STOOLS OF TWO OR THREE YEARS OLD.

There are still persons who think that if they plant stools of two and three years old they will be able to gather their crops earlier than when employing plants of one year old. In order to disabuse their minds of this old-fashioned prejudice, we shall place before them the result of some comparative experiments which we have recently made in spite of the question having long since been decided. We planted twelve stools of one, two, and three years old respectively in the same soil under the same conditions and at the same time. Calling those plantings Nos. 1, 2, and 3, the following is the result obtained during the first year:—

No. 1.—All the stools came up before May 4 and were well grown.

No. 2.—Ten stools showed above ground before May 4, one on the 10th, and one appeared to be dead. The *Asparagus* heads were very fine—finer, indeed, than those of No. 1.

No. 3.—Eight stools showed above ground before May 4, one on the 12th, and three gave no signs of life. The heads were very fine at first, but they became bent towards the end of the year (September 15) and were much weaker than those of No. 2.

Second Year.—No. 1.—Well-grown, regular, and strong heads, which measured on September 15 1 in. in circumference.

No. 2.—Well-grown, but irregular heads, somewhat weaker than those of No. 1.

No. 3.—Only pretty well-grown heads, very irregular, some of the stools having as many as eight or ten, but all very weak. One stool died after growing two heads.

Third Year.—No. 1.—Magnificent growths, the heads measuring on April 10 from 2 in. to 3¼ in. in circumference.

No. 2.—Growth passable only, but very irregular. Some of the stools are very small. The finest of them produced heads which from April 8 to 10 only measured 2½ in. in circumference.

No. 3.—Growth very poor and very irregular. Some of the stools continue to produce small heads not much thicker than a quill pen, the largest being from 1½ in. to 2 in. in circumference.

Fourth Year.—No. 1.—Growth very remarkable. The heads began to show on April 3, 4, 5, 7, and 10. Some are from 3¼ in. to 4 in. in circumference, and measure 4¼ in. Fifty of the heads form a bundle which weighed 3200 grammes (7 lb.).

No. 2.—Growth passable, but later than No. 1. The heads made their first appearance on April 6, 10, and 11. Many

of them were very small; fifty of them barely made half a bundle, and only weighed 1700 grammes (3¾ lb.).

No. 3.—Growth but poor, and somewhat late. The heads made their appearance on April 4, 6, 9, and 11; one did not show till the 22nd. Fifty heads barely formed half a bundle, and only weighed 1150 grammes (2½ lb.). To sum up it is clear that the plants of a year old in their fourth season, that is to say, after having been planted out for three years, gave a bundle weighing 3200 grammes (7 lb.), while those of two years old only gave 1700 grammes (3¾ lb.), and those of three years old only 1150 grammes (2½ lb.); in other words, taking round numbers, the plantation made with the one-year-old plants produced double the crop of the two-year-old plants, and treble that of the three-year-old plants. The reader may easily draw his conclusions from the preceding facts.

Sowing in the Open Ground.—Some authors advocate and many persons still adhere to the old-fashioned method of sowing *Asparagus* in the open ground instead of planting out the stools as already directed. This method of cultivation is defective for two reasons: first, because if all the seeds do not come up we must begin our work all over again, which will not only retard the crop of the year and make the plantation irregular; and secondly, every plant, whether good or bad, must be kept in the place where it was sown. Again if two or three seeds come up side by side it is very difficult to thin them out, there generally being two left behind which give rise to a couple of stools, which will certainly interfere with each other's growth, and will only yield a poor and uncertain crop. By adopting the transplantation system we need only use the choicest plants we can get, which is after all the easiest and cheapest way of obtaining fine and profitable crops. The difference between a plantation formed from seed and one made by transplanting the stools is very great, and is so much in favour of the modern system that it can be only ignorance of the results obtained by it that can account for the old-fashioned method being adopted. We have seen even at Argenteuil plantations formed from seed, but with all the care that it is possible to bestow on them they produce exceedingly irregular crops, so much so that they yield less than half the quantity given by the planted beds. The defects of the old system are so apparent that we need not have recourse to any facts in proof of them.

Utility of Earthing up.—We have often been asked to explain the part played by the mounds of earth beneath which the stools are buried at a certain time of the year. Earthing up allows us to plant the *Asparagus* stool less deeply, so that it has all the benefit of the manure, the rains, and the spring sun. It also allows us to shelter the heads from the influence of the atmosphere and the light, so that they do not turn green and hard, but remain white and tender, besides growing much longer. Another advantage gained by earthing up is to prevent all danger from the late spring frosts, the young shoots being so well covered up that they experience no injury. In certain localities people have not yet learned to distinguish the difference between blanched and green, and many affect to prefer the latter. This vulgar error cannot be too quickly extirpated in the interests of all true lovers of this delicious vegetable. In the case of the green *Asparagus* it is only the tip of the shoot that is eatable, whereas the blanched *Asparagus* can be nearly all eaten, besides which it is infinitely superior in point of tenderness and flavour. *Asparagus* which is green at the moment of gathering should only be used as a garnishing for Peas. No one with any pretensions to good taste would serve up green *Asparagus* to table. In the Paris market green *Asparagus* only fetches

1 franc a bundle (9'6d.), while the blanched vegetable fetches 3 francs (2s. 4'8d.). The green Asparagus is never eaten in Paris, but is used for making syrup of Asparagus and other pharmaceutical preparations. GODEFROY LEBŒUF.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

SEPTEMBER 16.

THE chief attractions on this occasion were the superb collections of cut blooms of Dahlias, Asters, &c., exhibited by various contributors. Groups of plants were also shown, amongst which were several of special interest.

First-class Certificates.—These were awarded to the following:—

Cypripedium calanthum (Veitch).—A handsome hybrid variety, the result of a cross between *C. Lowi* and *C. biflorum*, and one which partakes of the character of both parents.

C. oenanthum (Veitch).—Also a hybrid, raised between *C. Harrisianum* and *C. insigne Maulei*. A fine addition to this type of Lady's Slippers.

Nepenthes Wrigleyana (Veitch).—A variety with handsome pitchers produced plentifully. It is the result of a cross between *N. Hookeri* and *N. phyllamphora*.

Tillandsia Lindenii vera (Williams).—A beautiful Bromeliad with a rosette of narrow curved leaves, from which are produced the flower-stems bearing bright purple blossoms, which appear from the axils of bright pink bracts arranged in two rows on either side of the stem.

Nepenthes robusta (Williams).—A strong-growing kind, with large, well-formed, and elegantly-spotted pitchers.

Ophiopogon Jaburan variegatum (Lloyd).—A prettily variegated-leaved variety of an old plant, which bears numerous spikes of purplish blossoms. The plant, moreover, has an elegant habit of growth.

Verbena Mr. Thompson (Mould).—A beautiful variety, of large size, both in truss and pip. The colour is bright scarlet, with a conspicuous white eye.

Dahlia Ethel Britton (Messrs. Keynes & Co.).—A kind with flowers of large size and fine form, of a creamy-white colour, with the florets tinged with a purplish hue.

Second-class Certificates were awarded to the following:—

Drosera dichotoma rubra (Bull).—This differs from the original in the glandular hairs of the stem being of a reddish colour.

Agave marmorata (Boller).—A variety much in the way of the American *Agave* (*A. americana*), but having the leaves marked with transverse bands of white, which give the plant a pretty appearance.

Dahlia Yuaiczi (Cannell).—A Botanical Certificate was awarded to this; it is a scarlet-flowered variety with the florets arranged so that the head resembles the flower of a *Cereus*.

An attractive and tastefully-arranged group was shown by Messrs. Veitch & Sons, comprising, in addition to those mentioned above, a choice collection of Pitcher Plants, which for the most part were of hybrid origin, such as *Nepenthes Courti*, a free-growing, dwarf-habited kind, with handsome flask-shaped pitchers of large size. *N. Hookeri elongata*, *N. Chelsoni*, *N. maculata*, *N. Ratchiffiana*, *N. zeylanica rubra*, are all uncommon kinds, but all of the highest merit; the pretty *N. Sedeni*, too, is a highly desirable plant, as well as its rarer congeners *N. Stewarti*, *N. Kennedyana*, and *N. Wrigleyana*. The handsome *Sarracenia Chelsoni*, a hybrid between *S. rubra* and *S. purpurea*, is a fine addition to the cool-house Pitcher Plants, and will no doubt meet with much appreciation when it becomes less rare. Other insectivorous plants were shown in a small group, such as *Droseras*, *Darlingtonias*, &c. Numerous Orchids in flower enlivened the group, such as the well-known *Zygopetalum maxillare*, with an abundance of flower-stems; a fine example of *Saccolabium Blumei majus*, the beautiful *Dendrobium bigibbum* and *D. formosum*, *Phalenopsis Esmeralda*, and a superb variety with a broad, amaranth-tinted lip of *Laelia elegans*. Of hybrid Orchids there was a numerous display, particularly of Lady's Slippers. Of these *Cypripedium oenanthum* and *C. calanthum*, already mentioned, were among the newest. Other interesting kinds were *C. selligerum*, a hybrid between *C. levigatum* and *barbatum*, *C. vexillarium*, with *C. barbatum* and *C. Fairrieana* as its parents,

the pretty and now well-known *C. Sedeni*, *C. Harrisianum*, and others. A fine hybrid *Cattleya* bearing the name of *C. Manglesi* is an acquisition amongst autumn-flowering kinds, and so is *C. hybrida picta*, a cross between *C. guttata* and *C. intermedia*. The rare *Zygopetalum Wendlandi* was amongst the number and is referred to elsewhere in our columns. The beautiful greenhouse hybrid *Rhododendrons* added much to the attractiveness of the group. These included the crimson *Duchess of Edinburgh*, the delicate rosy-pink *Taylori*, *Princess Frederici*, &c. From Mr. Bull came a small group of new plants, including the handsome *Dendrobium Goldiei*, and the more curious than beautiful *D. undulatum fimbriolabium*. *Adiantum bellum*, *mundulum*, and *dissectum*, all elegant Maidenheads, were also in the group, together with the new *Calyptronoma Swartzii*, an elegant Palm of graceful habit. Four varieties of new *Coleuses* were also shown, of which one named *Sparkler* and another *Butterfly* showed very quaint markings. A small collection of choice plants were also contributed by Mr. Williams; the lovely *Tillandsia Lindenii vera*, alluded to elsewhere, being the admiration of every one. *Dendrobium superbiens*, very similar to *D. Goldiei* in the previously named collection, the beautiful Australian *D. bigibbum*, a fine example of *Odontoglossum Pescatorei*, and a curious kind bearing the provisional name of *O. albo-labium* were amongst the most conspicuous of the Orchids. *Calamus densus* and *Cocos elegantissima*, a very graceful Palm with the pinnæ of the leaves arranged in a similar manner as in *C. flexuosa*, but of an elegant, arching habit, were noteworthy plants also. A flower of the lovely pink *Nymphaea Eugénie* also came from the same garden. Mr. Green, gardener to Sir G. Macleay, Pendell Court, Bletchingley, contributed some interesting cut flowers, including fruiting spikes of *Gunnera scabra* and the rarer kind *G. manicata* for comparison; also *Aristolochia Kämpferi* (syn., *A. trilobata*), a singular species with flowers strikingly resembling the pitchers of a *Nepenthes*; *Carolinea insignis*, a noble *Sterculiaceus* plant, the flowers of which are rendered remarkable by the large tassel-like tufts of stamens. The flowers of the lovely *Lagerstromia indica*, a stove shrub not often seen in flower, were also shown by Mr. Green; also flowers of the newly named *Montbretia Pottsi*, though not new to cultivators, as Mr. Green has grown it for years without a definite name. Messrs. F. and A. Smith, Dulwich, sent plants of *Tabernaemontana Camassa*, a *Gardenia*-like plant, though lacking the delicious perfume of the latter; also a mottled-leaved form of *Ficus elastica*, though not at present very distinct. *Ageratum Princess Beatrice*, a dwarf-growing kind, was sent by Mr. Todman, Tooting Common. Mr. Boller contributed a few interesting kinds of Succulents—of which some were new, others rare—such as *Agave Shawi*, *A. Victoria Regina*, *A. albicans*, *A. flagelliformis*, *A. aristata*, &c. Cut blooms of *Marigold Meteor* were sent by Messrs. Haage & Schmidt, Erfurt. It has the florets of a pale yellow tint conspicuously margined with deep orange. A collection of fine seedling *Verbenas* was shown by Mr. Mould, Pewsey, Wilts; and by Mr. Cannell, in addition to Dahlias, a fine display of cut blooms of the showy Tiger flower (*Tigridia Pavonia grandiflora*); also examples of a choice strain of Cockscombs, &c.

A fine collection of Dahlias was shown by Mr. Walker, Thame, Oxon, consisting of about four dozen blooms of the finest sorts. Most of these were represented by blooms measuring as much as 5½ in. across, and of perfect form. Amongst them the most conspicuous were Earl Radnor, a fine plum-coloured kind, Mrs. J. Downie, white with a delicate flush of purple. Flora Wyatt, Willie Eckford, Monarch, Ovid, Henry Walton, were also amongst the best. These were deservedly awarded a silver Banksian medal. From Messrs. Keynes & Co., Salisbury, came a similar contribution, consisting chiefly of seedlings. Of these the finest were Ethel Britton, to which was awarded a certificate; Triumphant, a bright crimson; Victor, a deep red; and Frederick Smith, an unusually large and fine flower of the fancy type, of a violet tint striped with a darker hue. A fine collection of about thirteen dozen blooms was exhibited by Mr. Cannell, Swanley, comprising many of the show, fancy, and bedding sections, besides a numerous collection of the bouquet kinds, all of which were remarkable alike for the cultural skill which they exemplified. A silver Banksian medal was also awarded to this fine collection. In addition to this Mr. Cannell also showed a collection of the original single flowered kinds such as *D. Cervantesi*, *coccinea*, *glabrata*, and *Paragon*. A beautiful Cactus-flowered kind, named *Yuaiczi*, obtained a botanical commendation. The florets are not quilled as in the florists' varieties, but are straight and arranged in a rosette-like manner. The singular green-flowered Dahlia (*D. viridiflora*) was also shown in this collection. Mr. Smith, Edmonton, also contributed a dozen blooms of choice varieties, all of large size, excellent form, and diverse in colour. A similar number came from Messrs. Rawlings, Romford, which like all the rest were in capital condition, notwithstanding the past unfavourable weather. Cut blooms of Asters were numerous represented; an excellent collection was exhibited by Mr. Walker. It comprised named varieties of the quilled section, and a large number of other types,

all of which though fine were inferior to those seen here on former occasions, a circumstance doubtless owing to the inclement season. A silver Banksian medal was deservedly awarded to these, and a similar award was voted to Mr. J. M. Gilkes, Wickham, Newbury, also for a collection of Asters consisting chiefly of the quilled type. Asters were also numerous shown from the Society's gardens, those of Benary's strain being particularly fine.

Fruit.—Of this there was but little to engage the attention of the committee. A seedling Melon named Hyde's Hybrid was sent by Mr. Hyde, Farnborough Park. A sample of a white transparent Apple was shown by Mr. Killick, Maidstone, which was considered a good variety, and deserving of more extended knowledge. The same exhibitor also showed a dish of Sutton's Magnum Bonum Potato, as being the only variety out of forty grown that has quite escaped the disease. Sutton's Red Fluke was also shown, of which five per cent only were diseased.

INTERNATIONAL POTATO EXHIBITION.

SEPT. 17—18, 1879.

THIS, the fifth annual exhibition of Potatoes, was held on Wednesday and Thursday last at the Crystal Palace. On the whole there was an excellent display, and though it fell somewhat short in point of numbers compared with that of last year, the quality of the exhibits was in all respects everything that could be desired. They showed a remarkable evenness, the majority being good and none decidedly below the average. The almost entire immunity of the tubers shown from the prevailing disease, which is exceptionally virulent this season, was very noteworthy; only a very small percentage showed traces of it.

In the premier class for twenty-four varieties prizes were given of the value of twenty-four guineas. The best collection was shown by Mr. P. McKinlay, whose lot were characterised by evenness and clean appearance, combined with large size. The varieties included amongst coloured Kidneys—Trophy, Grampian, Late Rose and Early Rose; white Kidneys—Early King, Wiltshire Snowflake, Magnum Bonum, International Kidney, Snowflake, Beckenham Beauty, Woodstock Kidney, Womerleighton's Seedling. Of red Rounds there were Triumph, Manhattan, Blanchard, Beauty of Kent, and the new Vicar of Laleham. White Rounds were represented by Schoolmaster, Shelburne, Climax, and Rector of Woodstock, all excellent in every point. Mr. T. Pickworth was second with excellent dishes of tubers, amongst which the most noteworthy were Triumph, Sutton's Red Skin, Grampian, of red-skinned Rounds; Schoolmaster, Porter's Excelsior, Dalmahoy, Bresee's Peerless, in the white Rounds. Of Kidneys, International, McKinlay's Pride, Woodstock Kidney, were shown well. The third prize was awarded to a northern grower, Mr. W. Kerr, Dumfries, whose collection was excellent, though some dishes were rather undersized. The fourth prize collection also was remarkably good; it was shown by Messrs. Lott & Hart, Faversham. An extra prize was awarded to another Faversham grower, Mr. Akehurst, and Mr. W. Finlay's collection from Banbury was commended for general excellence. The prizes for eighteen distinct varieties, of the value of eighteen guineas, were presented for competition by Messrs. Sutton & Sons, Reading. Sixteen exhibitors contested in this class. The finest collection was staged by Mr. F. Cresswell, Ipswich, who had excellent tubers: of coloured Rounds—Triumph, Grampian, Brownell's Vermont Beauty, and Blanchard; of white Rounds were Norfolk Giant, Alpha, and Porter's Excelsior. Coloured Kidneys were represented by Brownell's Superior, Late Rose, and Lady Webster; white-skinned sorts were Veitch's Improved Ashleaf, International, Snowflake, Woodstock, Oyster, Covent Garden Perfection, and Rector of Woodstock. Mr. J. Matthews, Sittingbourne, showed the next best collection, comprising fine tubers of Snowflake, International, Grampian, Beauty of Hebron, Schoolmaster, Davis's Improved Ashleaf, Blanchard, Magnum Bonum, Lye's Favourite, Scotch Blue, and Early King. The third place was taken by Mr. W. Finlay, Banbury, whose collection on the whole was good, though some of the dishes contained rather undersized tubers. Mr. Crump took the fourth prize, and Mr. Wildsmith the fifth. The next class was for twelve varieties. A fine collection was shown for the first prize by Mr. T. Pickworth, Loughborough, Leicestershire. The kinds were, of coloured Rounds, Triumph, Grampian, Blanchard; white Rounds, Bresee's Peerless, Porter's Excelsior, Lady Gordon, Premier, and Bresee's Prolific. Of Kidneys were King of Flukes, International, and Beauty of Hebron. The second best lot comprised fine examples of Snowflake, Pride of Ontario, Schoolmaster, Woodstock Kidney, and Scotch Blue. There were seventeen exhibitors in this class, and the prizes were given by Messrs. Hadley, Abbiss, and Fawell. A numerous and well-contested competition characterised the class for six dishes of distinct varieties. The first place was taken by a re-

markably good collection consisting of Trophy, Early Vermont, International, Beauty of Hebron, Bresee's Prolific, King of Flukes, all exemplifying high cultural skill. This collection was shown by Mr. T. Pickworth. The next best was also excellent, including Red Emperor, Grampian, as Red Rounds; Schoolmaster, Trophy, International Kidney, and Snowflake, of Kidney kinds. An error in the nomenclature of one variety disqualified the next best collection, and the prize was accordingly awarded to a well-grown lot from Mr. Matthews, who had fine examples of Snowflake, Triumph, and International Kidney. In the fourth collection were Beauty of Kent, Snowflake, Breadfruit, Early Vermont, all of excellent quality. There were two dozen exhibitors in this class, and the first two prizes were given by Messrs. P. McKinlay and Barr & Sugden. The class for four dishes consisting of two Round and two Kidney varieties was well contested, there being twenty exhibitors. The best came from Mr. F. Miller, Northdown, Margate, who had Ashtop and Snowflake for Kidneys, Radstock Beauty and Blanchard for Rounds, all well-grown and even. The next best contained Red Emperor, Blanchard, International, and Myatt's Ashleaf. The third place was taken with fine tubers of Trophy and International, Kidneys; Radstock Beauty, and Schoolmaster, Rounds. For four dishes of distinct new varieties not in commerce, or in commerce for the first time this year, there were seven exhibitors. Mr. P. McKinlay, Penge, headed the list with Beckenham Beauty (a handsome white Kidney), Woodstock Kidney, Vicar of Laleham (a dark-skinned Round kind), and Shelburne (a smooth-skinned Round of medium size). Mr. R. Dean, Ealing, was second with Vicar of Laleham and Early Purple (a purple-skinned Kidney), Cosmopolitan and Avalanche (white Kidney varieties). In the next lot were Woodstock Kidney, Heather Bell, and Tiftie's Annie (a kind very similar in appearance to Blanchard). The other collections included, besides above-mentioned kinds, Johnston's Downshire and Beauty of Kent of coloured Rounds; Washington, Early Bird, and Britannia, Kidneys; Dux and Criterion, white Rounds. In the next class for two dishes consisting of one Round and one Kidney variety, the prizes were given by the Amies Chemical Manure Company. Twenty-three collections were exhibited. The best was shown by Mr. Matthews, who had excellent examples of Porter's Excelsior and International Kidney. The second prize was won by the International and Schoolmaster varieties. The class for any white Round sort brought out twenty-two exhibits. The variety Schoolmaster was awarded the first prize, which was shown by Mr. Kerr; Mr. R. Dean was second with fine tubers of Porter's Excelsior; Woodstock Round was shown well by Mr. Pallister for the third place. Bresee's Peerless, Excelsior, Regent, and Henderson's Prolific were also well represented. The best dish of a coloured round Potato was shown by Mr. R. Dean, who had fine tubers of Lye's Favourite. The sort Blanchard took the next two prizes. There were sixteen dishes exhibited, and Triumph, Grampian, Early Emperor, Red Emperor, were admirably well shown. The best dish of white Kidney variety was shown by Mr. W. Finlay, who had excellent tubers of International. Woodstock Kidney was awarded the second prize, and Beckenham Beauty the third. Twenty-six dishes were exhibited in this class, the variety International being the sort chiefly shown. The best dish of any coloured Kidney kind was shown by Messrs. Lott & Hart, Faversham, who had fine tubers of Trophy. The next was red Kidney shown by Mr. W. Kerr, Dumfries, and Brownell's Superior was shown for the third place. Seventeen dishes were exhibited in this class, the prizes being presented by Mr. J. Crute. Ten dishes were staged of Radstock Beauty for the prizes offered by Mr. R. Dean, Ealing. The best was shown by Mr. F. Miller, Margate, who had clean and handsome tubers. There was a numerous competition for Messrs. Sutton & Sons' prizes offered for their white Kidney Potato Magnum Bonum, which was shown exceedingly well, there being twenty-two dishes shown. The best came from Mr. W. Crump, Blenheim, Woodstock; and Mr. Baldwin and Mr. G. Masters were placed next in the order named.

Miscellaneous Class.—Messrs. Sutton & Sons, Reading, exhibited a large sample of their new Magnum Bonum Potato, and a smaller one of Woodstock Kidney, also a new variety. From Messrs. Harrison & Son, Leicester, came a large assortment of tubers comprising about three dozen varieties.

A collection of Gladioli, consisting of about 250 spikes in sixty varieties, was sent by Messrs. Vilmorin-Andrieux & Co., Paris, which considerably enlivened the surroundings. Mr. Cannell, Swanley, also contributed cut blooms of Dahlias, Tigridias, Verbenas, &c., and Mr. Boller showed an interesting collection of Cacti, &c.

A list of awards will be found in our advertising columns.

Webb's Improved Banbury Onion.—This is one of the handsomest of all Onions. It forms bulbs quickly, and has a wonderful tendency to remain small in the neck. It keeps very well, and is altogether a most useful variety.—T.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE autumn show of this Society took place the other day in the Waverley Market Hall, Edinburgh, and despite the unfavourable climatic influences with which horticulturists have been and are still contending, the show was in every respect a success. The Lawson Seed and Nursery Company greatly enhanced the general appearance of the hall. Instead of displaying their plants and flowers on the orthodox staging, the company had laid out the part of the hall allotted to them—nearly a quarter of an acre—as a flower garden, and grouped their exhibits into tasteful figures with the best effect. At the extreme west of the hall was a fine clump of variegated *Coniferae*, prettily graduated with a wavy border of Golden Box; in the centre was a large oval flanked by circles, while to the east was another crescent-shaped parterre. In these, tree Ferns, Palms, Crotons, *Dracenas*, *Coniferae*, and florists' flowers were arranged with perfect taste; and this flower garden fairly divided with the fruit display the honours of the day. The idea so commended itself to all who saw it that it is not unlikely to supersede the staging, at least for nurserymen, on other occasions. There is usually a good display of fruit at the autumn show; but on this occasion it far exceeded anything that has been seen before in Edinburgh, except at the International Exhibition. Of Grapes especially there was a splendid display—there being close upon 300 bunches on the tables, and nearly all of excellent quality. Mr. Dickson showed a bunch of Syrian weighing 13 lb. 3 oz.—a figure which, however, does not approach to some of the former prize bunches in the same competition. The best flavoured Grape was declared to be the Duchess of Buccleuch.

PLANT ARRANGEMENT AT FLOWER SHOWS.

I THINK it would be much better if the custom of erecting stages at flower shows could be entirely abolished. When, as is often the case, the plants are placed upon platforms of a more or less elevated description, not only is there a difficulty in concealing the pots, but the specimens themselves show to much less advantage than when placed upon the level ground. The graceful proportions of a Fern or a Palm, or the merits of a well-grown, finely-bloomed Erica or Fuchsia, can be best judged when the whole plant comes well below the level of the eye. This remark will also apply not only to the single specimens but also to the group or series of groups of which the exhibition may be composed. At the recent exhibition of the Byfleet Horticultural Association, the whole of the plants were disposed upon the Grass, an arrangement which produced a very pleasing effect and which elicited warm expressions of approval from the visitors. The plants were disposed in semi-circular groups against the canvas, thus affording a very pleasing *coup d'œil* from the entrance to the tent. Another feature of this exhibition to which I would wish to direct attention is that, instead of forming classes containing a fixed number of plants, the exhibits consisted exclusively of groups, in which the competitors were restricted only to space. By varying the space to be covered, little growers were enabled to compete on advantageous terms, and more groups were formed than could otherwise have been the case. When the show is of a purely local character, and the neighbourhood not a large one, it would be wiser to follow some such system as this than to restrict exhibitors to a certain number of specimens, as it often happens that either the grower cannot muster the required number or that he hesitates to bring forward a somewhat uneven lot. Many small growers are thus debarred from exhibiting, and many a good plant in this way remains at home instead of gracing the exhibition tent. Another point in favour of the grouping system is that it affords scope for the exercise of taste in the grower, who may often, with plants of an ordinary description and of not large dimensions, form groups of a pleasing description. Illustrations of this were to be seen in groups of fine foliaged and flowering plants arranged by Mr. Rose and Mr. Parker, which, although not containing anything very rare or costly, yet, owing to judicious and tasteful arrangement, produced an exceedingly pleasing impression. The gardener is now more than ever called upon to cultivate both judgment in selection and taste in arrangement; he must not only know how to grow his plants well, but the knowledge of how to place them to the best advantage is often required of him. This, therefore, being such an important affair, should not be lost sight of at plant exhibitions, and no form of exhibiting can so well call forth the energies and resources of the grower in this respect as the arrangement of groups of flowering and foliaged plants, limiting him to space, but allowing of the full exercise of judgment in the choice of subjects. Let me, however, not be misunderstood. I would not wish to confine a show entirely to groups. When the neighbourhood is large enough, by all means form classes, in which the capabilities and merits of certain plants or classes of plants may be displayed in the so-called speci-

men stall. In the case, however, of the exhibition already mentioned, which was very successful, I am convinced that only by the method described could a flower show have been formed. I also feel certain that there are few neighbourhoods in which an exhibition of plants might not be organised were the group system entirely relied on.

JOHN CORNHILL.

ANSWERS TO CORRESPONDENTS.

Permanent Hedge—In answer to "François" (p. 252) I can say that in November of 1877 I planted about 250 ft. of boundary with the Myrobellia or Cherry Plum, sent out by Mr. Ewing for this purpose. It is now a thick, close hedge about 4 ft. high, with a good bottom. In another twelve months I expect it will be practically impenetrable. It is planted on the flat close up to the posts and rails. —C. H. G. *Strines*.

—Having already a wood fence that ought to be able to offer the required protection for a few years, "François" will find that the best possible kind of permanent plant fence will be one made with Holly. As a stout, firm, dense, and indeed almost impenetrable fence plant the Holly is unrivalled, but it needs time and patience to bring it to a good hedge condition. Unlike quicksets—the commonest and perhaps the cheapest material—Holly is evergreen; it does not require to be so thickly planted, and needs much less looking after. It is, perhaps, somewhat more costly to start with, but as to its advantages when the hedge is established there can be no question. Good plants from 18 in. to 20 in. in height, well rooted, planted in a single line at from 15 in. to 18 in. apart, need only to be kept clean and growing upward, the sides being kept in place by means of a knife or shears. Such a fence will need neither bank nor ditch, as when from 5 ft. to 6 ft. in height, and 2 ft. through, it would almost repel an army.—A.

Hardy Flowers for Beds.—I have a bed partly filled with Tritomas, White Japan Anemone, Rudbeckia Newmanii, and Sedum spectabile; what other autumn-flowering perennials would harmonise with these? Q. [Plant the red Japan Anemone; also two or three of the perennial Asters or Michaelmas Daisies, which should have positions in the bed according to their respective heights. *Physostegia imbricata* is also a fine autumn plant, bearing as it does spikes of flowers of a soft pink hue, resembling those of a large Epacris. It likes a deep soil, and makes a growth of some 4 ft. in height. Pentstemons, especially those from spring sowings, flower finely late in autumn, as do also Antirrhinums. Beds of these from spring seedlings are very brilliant in colour. Good autumn flowers that will fill up the interval between the bedding plants and the incoming of the Chrysanthemums are most valuable, and if not all perennials would not on that account be rejected. Some good patches of the Colchicums would not be out of place in such a bed, or any of the autumnal flowering varieties of the Crocus.—D. E.]

Climbers for Trellis Work.—I have just had about 40 ft. of trellis work erected to divide my flower and kitchen gardens, and as one side faces the house I wish to cover it with hardy, flowering climbers. Would you kindly inform me if *Passiflora corulea* and *Clematis* will succeed on it, or what other climbers would do well? The open side of the trellis faces the south-east.—P. [*Passiflora corulea* and all the hardiest kinds of *Clematis* should do well on the trellis described; also some hardy Vines, especially the Ciotot or Parsley-leaved kind, which is very ornamental, and the Madresfield Court, which assumes such glorious tints in autumn. *Jasminum nudiflorum*, *Forsythia viridissima*, *Cotoneasters*, variegated Ivies, the Lawton and other American Blackberries, the *Wistaria sinense*, Virginia Creeper, good hardy climbing Roses—these alone would furnish the fence and do well. Evergreen climbers should do well interspersed with the deciduous kinds, or those that lose their foliage in the autumn. Vines look well trained up at intervals to resemble piers, and their shoots trained along the top make a framework for the other plants. Such plants as *Tropeolums*, *Eccremocarpus*, *Cobaea scandens*, &c., sown or planted in the spring would help to give brightness and colour during the summer.—A. D.]

Names of Plants. *Woodville*—The Truffle-like fungus is *Scleroderma vulgare*, a very disagreeable (if not dangerous) species, and best avoided. *B. H.*—The flower sent had shed its petals before it reached us; apparently it is *Pleroma elegans*, but we cannot accurately determine without leaves. That to which you allude is probably *Lasiandra macrantha*, also a handsome *Melastomad*. *M. J. F.* *Clarkia pulchella* A. P. *Ceanothus Arnoidii* G. S.—1, Double-flowering Bramble; 2, *Helenium autumnale*; 3, *Sedum spectabile*. *J. E.*—*Bromus secalinus* C. C.—3, *Hemantthus natalensis*; 1 and 2, next week. *T. H. A. H.*—*Achillea Ptarmica*, *Pteris tricolor*. G.—1 and 3, send when in flower; 2, *Santolina incana*. S. S.—*Bartonia aurea*. *Woodville*—The small shrub is the Whortleberry (*Vaccinium Myrtillus*); the other was withered beyond recognition. *W. C.*—*Zygopetalum Mackayi*. *Enquirer*—The leaf sent is probably from an *Ampelopsis*, but we cannot tell from such scanty material. *F. F.*—*Epidendrum cochleatum*. C. J. N.—*Diplopappus fruticosus*. J. S. T.—1, *Coreopsis lanceolata*; 2, *Monarda didyma*; 3, *Lavatera trimestris*; 4, *Echinops ruthenicus*. *Decon*—We cannot undertake to name florists' flowers, as it cannot be done accurately, except by specialists.

OBITUARY.

It is with deep regret we have to record the death of Mr. William Wilson Saunders, F.R.S., an event which took place at his residence, at Raystead, near Worthing, on the 13th inst., at the age of 70. The eminent services which Mr. Saunders has rendered to botany, entomology, and kindred sciences are universally acknowledged. To horticulture, also, he was specially devoted, and his garden at Hill-field, near Reigate, was remarkable for the great variety of interesting plants which it contained. He took great interest in the Royal Horticultural Society, of which he was a Life Member. Kind in disposition and upright in all his dealings, his loss will be severely felt, and by none more, we feel sure, than by the readers of THE GARDEN, to which he was a constant contributor.

We have also to announce the decease of Mr. Davis, for forty years gardener to Viscount Bridport at Cricket St. Thomas, Chard, Somersetshire. His death was the result of an accident.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES OF THE WEEK.

The White Lapageria.—(*L. alba*).—Of this we have received a magnificent example from Mr. Titus Salt's garden at Milner Field, Bingley, Yorkshire. It consists of a shoot 6 ft. long, into 3 ft. of the middle of which were crowded forty-eight fully expanded flowers, in clusters of from three to four each. Of unexpanded buds there are eighteen on the same shoot towards the top, making altogether a wreath of pearly bloom such as we have never before seen. Mr. Anderson the gardener at Milner Field, states that in the house devoted to Lapagerias, from which the specimen sent was cut, there has been from 1300 to 1500 flowers expanded at one time. The shoot in question was the strongest of three growths on a young plant. Such examples show in a marked degree what can be done with this, one of the most beautiful of greenhouse climbers, by means of skilful treatment.

Anthurium Lindigi.—With the exception of *A. Scherzerianum* Anthuriums are not generally grown for the beauty of their inflorescence; but *A. Lindigi* is certainly deserving of attention, as it has an ovate, shell-shaped flower-spathe 3 in. long, of waxy texture, and pure white, whilst the spadix is of a bluish-purple. The leaves, moreover, are very handsome, being 1 ft. or more long, heart-shaped, and leathery in texture, and of a deep green hue. Like all the species of *Anthurium*, it inhabits the tropical parts of South America; hence in cultivation it requires a stove temperature. It is now in full beauty in the Aroid house at Kew.

The Closed Gentian (*Gentiana Andrewsii*).—One of the handsomest as well as one of the rarest of the cultivated Gentians, is this singular species, which is now in full beauty on the rockery in Mr. G. F. Wilson's garden at Heatherbank. It grows from 1 ft. to 1½ ft. high, and has broad, lance-shaped leaves arranged in opposite pairs at intervals on the stem. From the axils of the leaves on the upper half of the stem the flowers are produced in clusters of from four to six, and frequently as many as from fifteen to eighteen flowers terminate the stems. The flowers are about 1 in. long, and form a club-shaped tube with very short lobes, so that the flower never fully expands; hence it is called the Closed Gentian. The colour is a deep amethystine-blue on the outside, the teeth of the corolla being white, as are also lines running down the inside of the tube. It inhabits damp woods in the North-eastern United States and Canada, where it flowers during August and September. Though it has been introduced into cultivation for more than a century, it is still rarely met with in collections. It is of easy culture, and requires to be grown in a rich loamy soil in a damp but well-drained border.

A Noble Hardy Exotic Shrub.—We have published notes as to the hardness, or probable hardness, of *Leptospermum lanigerum*, a large Australian bush with small flowers like those of a white Saxifrage, and we now have great pleasure in recording that there is a very remarkable specimen of it on the lawn at Penrhos, near Holyhead. It is about 18 ft. in diameter of its spread of branches, and 13 ft. high, perfectly well furnished and healthy, the smallest leaves of a greyish hue, covered with flowers somewhat like those of *Saxifraga Burseriana*, it may be imagined how beautiful it must be and how distinct. The district is much exposed to the sea breezes and even the hardest trees are shorn by the winds, but it occupies a sheltered place on the lawn. After surviving here in perfect health the past winter and spring, no one can doubt that this shrub (an illustration of which is given in another page) will prove equally hardy over large districts of the country, certainly in all sea-shore and mild ones.

Brassavola Digbyana.—This little known West Indian Orchid is one of the few which have the lips of the flowers beautifully margined with a long and elegant fringe. The flowers, which measure nearly 8 in. across, are of a greenish-white colour, slightly tinged with purple. The lip is white, and has an emerald-green centre, ¾ in. in diameter, and the fringe varies from 1 in. to 1½ in. in length. In habit this *Brassavola* somewhat resembles a *Cattleya*, being about 1 ft. high, with leaves of a pale green, overlaid with a glaucous hue. It is now in flower in the Pine-apple Nursery, Maida Vale, where it forms an attractive object. It has been successfully imported in quantity from Honduras by Messrs. Henderson.

The Herbaceous Ground at Kew.—Visitors to the hardy plant collections at Kew will find that an alteration has recently been effected with regard to the arrangement of the bulbous

plants. Owing to the rapid and continued increase in the numbers of these it has been found necessary to remove the Liliaceæ from the head of the ground to the borders outside the wall which skirts the main portion. By this arrangement all the sections of the Order are in close proximity to each other and not separated by other families as hitherto. All the permanent Iridaceæ will be placed on the opposite side of the wall, and the Amaryllidaceæ will be located on the slip of ground which encircles the *Gunnera scabra*. This alteration will considerably facilitate the finding out any particular genus, a task which a stranger has often found tedious.

The Rock Abelia (*A. rupestris*).—This pretty Japanese shrub at present forms one of the most attractive objects on the "rookery" in Mr. G. F. Wilson's garden at Heatherbank, Weybridge, where it has been for several years quite unhurt by the severe cold of our winters. Its neat habit of growth, glossy green leaves, and abundance of delicate mauve trumpet-shaped blossoms—which, moreover, emit a pleasant fragrance—commend it to the notice of everyone. Though perfectly hardy in such a position in Mr. Wilson's garden, it however, requires the protection of a wall in low-lying districts, as, for instance, at Kew, where the plants against the walls are now finely in bloom. It was introduced to this country by Mr. Fortune many years ago.

Disa macrantha.—This splendid species is now in bloom in the Royal Botanic Gardens at Glasnevin, and, so far as my own knowledge goes, for the first time in Ireland. It flowered with Mr. Elwes, of Cirencester, a month or two ago, but does not appear to have received the attention as to publicity which the fact deserved. The flowers are as large or larger than those of *D. grandiflora*, and more rosy in colour. There is a sketch of this plant in the herbarium at Kew, where it forms one of a series of drawings sent by Mr. Sanderson from the Cape eight or ten years ago. Mr. F. W. Moore may be congratulated as the possessor of such a fine plant.—B.

Erica ramulosa.—This very handsome and free-flowering Heath is perhaps the most useful shrub now in flower in the open air, such quantities of pretty bloom does it yield. We noticed fine old shrubs of it at Penrhyn Castle, and also at the College Gardens at Dublin, where it is in various stages. When old it often assumes a broken and picturesque form, attaining a height of from 6 ft. to 8 ft. while young or cut-in specimens are compact in habit. It flowers in succession and apparently equally freely in old or young plants. Every garden should possess plants of it in various stages and positions.

The Giant Fennels in Autumn.—We have recently noticed *Ferula tingitana* in fruit, about 14 ft. high, in the gardens at Brown's Hill, Carlow, the foliage being at mid-September still fresh. In our many attempts to call the attention of lovers of fine hardy plants to the *Ferulas*, we fear we apologised overmuch for their supposed tendency to wither in early autumn, and advised their being placed alone near the margin of a shrubbery, so that no too early blanks would occur owing to their disappearance. The wet late season has no doubt preserved them longer than usual this year. The peculiar merit of these plants is, however, their rare verdure in early spring, where their great soft plumes appear as early as the snowdrops.

Nerine Fothergilli major.—One of the brightest ornaments in the houses at the Pine-apple Nursery just now is this fine bulbous plant, which, like a host of other beautiful Cape bulbs, is grown there largely. It is by no means a novelty, though it is apparently not nearly so well known as it should be, as it is seldom that we meet with it in private gardens. It is usually grown under pot culture, but it attains a larger size when planted in a border in a cool house, and under this mode of treatment it is grown well in Mr. Joad's garden at Wimbledon, who has it in a house devoted to similar half-hardy subjects. Nothing can well exceed the rich crimson colour of the large umbels of flowers, which are freely produced, and few autumn-flowering plants are better adapted for cutting, a state in which they last a considerable time in perfection.

Jasminum azoricum Planted Out.—Tender Jasmines grown in pots are so often failures that the only remedy seems to be planting out in beds or borders, for those who desire many flowers from these plants. A plant of the Azorean Jasmine planted out in a greenhouse at Belmont, Carlow, is now blooming as freely as ever the common Jasmine does in the open air. It is a beautiful plant for cutting for the house, and grown thus, affords abundant blossom for cutting. The odour is delicious. It forms a good rafter, roof, or pillar plant. Mr. Burbidge informs us that he has noticed it in other gardens about Dublin, doing remarkably well planted out. We noticed another very free flowering Jasmine in the gardens at Bodorgan, Anglesea, planted out in an intermediate house, of the name of which we are not certain. It is much smaller in blossom than *J. azoricum*, of a creamy white, and nearly covered with a spray of delicately-scented blossoms.

Darlingtonia californica.—This is becoming a really wonderful plant at Glasnevin, where the pitchers are bolder and larger than we have seen them in the native country of the plant.

Selaginella Kraussiana Naturalised.—This well-known little hothouse Moss is freely naturalised among the native Mosses in the grove round the lawn at Penrhos. On the lawn the delicate little Ivy Hairbell (*Campanula hederacea*) is abundant.

Dracæna indivisa at Penrhos.—Large specimens of this have stood the winter without injury in the gardens at Penrhos, Anglesea. In a winter when so many plants have perished it is satisfactory to know that this fine-leaved one has survived. The district is exposed, but the spot where the tall specimens are is well sheltered by trees.

Osmanthus ilicifolius.—This shrub, which we noticed some time ago as doing so well at Mr. Geo. Paul's nursery at High Beech, is no less remarkable at Bodorgan, in Anglesea, where both the green and variegated forms are now wide spreading shrubs 10 ft. high. As to their hardiness there can be little doubt after the past winter.

Stigmaphyllon ciliatum.—This singularly beautiful stove climber, with yellow blossoms, looking at a distance like *Oncidium* flowers, and having one of the most graceful forms of leaf among all climbing plants, is now in good bloom in an intermediate house at Penrhos. It is a valuable pillar plant. If such climbers were more frequently seen well grown, hothouses might be embellished by their aid alone, and not so often stiff and bare.

Glades of Hardy Ferns at Penrhyn Castle.—Mr. Speed has formed some very charming glades of Ferns at Penrhyn Castle by planting hardy kinds in quantity near the drives, as much in the open sunny places as under trees; much of the surface now covered in this way was once regularly mown, so that in adding a pleasing feature to the place, a considerable waste of labour has at the same time been put a stop to.

Hedychium coronarium Out-of-doors.—A vigorous plant of this beautiful Scitaminad is now in flower in Mr. G. F. Wilson's "wild garden" at Wisley. Its bold, handsome foliage contrasts finely with its lovely white blossoms, and being quite unlike the surrounding vegetation, it has a special interest. In such sheltered places this, and many similar plants, would thrive admirably, and with care would be able to pass through our winters unscathed.

Disa grandiflora var. psittacina.—This remarkably distinct variety of the beautiful large-flowered *Disa* is now in flower in Mr. Williams' nursery, Holloway. Its blossoms are about the same size as those of the type, but the upper, hood-like portion of the flower is of an orange-yellow colour, and more distinctly veined. The sepals are green at the base and also at the tips; the intervening space is of an orange-red hue, altogether affording a striking contrast of colour, and aptly suggesting its varietal name—the Parrot *Disa*.

Seedling Antirrhinums.—Mr. Caudwell, of Wantage, has sent us samples of a fine strain of these popular hardy flowers. They are large both in spike and flower, and exhibit a great diversity of colour, varying from dark crimsons with pure white throats to white and yellow selfs. Some, too, are copiously spotted, whilst others are quaintly streaked and flaked with various colours.

Purple Hemp Agrimony (*Eupatorium purpureum*).—Few more desirable plants could be selected for naturalising in moist places than this noble North American Composite. When strongly developed it attains a height of from 6 ft. to 8 ft., and has stout purple stems, and very dark green leaves arranged in whorls of from three to six. The flower-heads are purplish, arranged in broad flat clusters of from 9 in. to 1 ft. across, and are produced towards the end of summer. It thrives best in damp places in stiff soil. The unusually fine specimens of it in Mr. Steven's collection at Byfleet admirably exemplify its adaptability for border decoration as well as for the rougher parts of a garden.

China Asters.—We have received from Messrs. Webb & Sons, Stourbridge, a fine assortment of blooms of these showy autumn flowers as grown at their extensive seed farms at Kinver Hill. Considering they have been grown out-of-doors in such an unfavourable season as the present, we think them remarkably good; most of the blooms measure as much as 3½ in. across.

St. Paul's Churchyard.—The recent improvements connected with the space immediately surrounding St. Paul's Cathedral are now nearly completed at a cost of £5000. The place was opened to the public on Monday last by the civic authorities. The borders are planted with trees and shrubs which will endure a town atmosphere, such as Hollies, Yews, Rhododendrons, Planes, Maples, &c. A few hardy herbaceous plants are interspersed in the shrubberies, and the Michaelmas Daisies are now beginning to be attractive. The

turf is at present as green as it is far in the country. The comparatively small space is apparently made the most of by a skilful arrangement of gracefully winding paths and undulating beds.

Pelargonium Society.—A meeting of this Society was held at Chiswick, on Tuesday last, for the appointment of officers for the ensuing year. The future arrangements of the Society, including some proposed alterations of rules and of the schedule, were discussed. Judging from the balance sheet of the past year, it appears that the Society is in a prosperous condition, there being nearly £80 in the treasurer's hands.

Seedling Roses at Lyons.—The Roses shown at the late exhibition here were not so numerous as usual and contrary to the general rule, the blooms, and particularly the Teas, Bengals, and Noisettes, were not so fine as they ought to be in our favourable climate at this season of the year; while in June and July the hybrid perpetuals were all that could be desired. Some new seedlings were exhibited, but of their merits I cannot conscientiously inform your readers because in my opinion cut flowers do not convey a fair idea of the value of a new variety, as much of course depends upon its growth, foliage, and its more or less free blooming properties, hardiness, &c., unless at first sight it shows something very distinct, either in shape, size, colour, or scent. Nevertheless there was one with which I think proper to make your readers acquainted. Being struck by the large truss of blooms exhibited I made up my mind to learn more regarding the plant. I therefore went to the raiser, Madame Veuve Rambaux, where I found a great number of plants of it covered with blooms, and on nearly all the branches numerous clusters of flower buds. They had been continually in bloom the whole season; it is a seedling from *Rosa polyantha*. The plant, which is dwarf (being about 1½ ft. high), is vigorous, and what is very remarkable, some of the trusses rise about 1 ft. above the foliage and consist of a considerable quantity of blooms both open and in the bud state; on one I counted sixty-five, a number as far as I know very uncommon. The flowers are pure white and last very long in perfection; they measure about 1½ in. in diameter, are very double, and shaped like Paquerette (of Gillot fils), also a seedling from *Rosa polyantha*. Each truss will make in itself a splendid bouquet. It will doubtless make a fine pot Rose, and as such will be useful for table decoration if forced to bloom in the early part of the year.—JEAN SISLEY, *Montplaisir, Lyons*.

Botanic Garden, Graz (Styria).—When visiting this garden a few weeks ago, I was struck with the masses of hardy perennials which are cultivated in it; but there are very few houses in which to grow tropical plants. The principal features of the garden, therefore, are collections of trees, shrubs, and hardy herbaceous plants, and last, but not least, Alpine plants; the latter in great luxuriance on a rockery in a shady situation. Amongst Grasses I noticed the very ornamental *Sorghum halepense*, with red flower spikes 5 ft. high; and *S. vulgare*, nearly the same height, but with green flowering spikes. Of Panicums, of which different kinds are grown here, the most attractive was *P. capillare*, the spikes of which are 1 ft. high, and are furnished with minute flowers, making them well adapted for vases or any kind of room decoration during winter. As regards herbaceous plants, the most attractive at the time of my visit were the various species of *Eupatorium* then in full bloom, viz., *E. maculatum*, *E. altissimum*, and *E. purpureum*; the last measured from 6 ft. to 8 ft. in height—a fact which proves that where they have plenty of space in which to develop themselves freely, the growths which they make are all that can be desired. *Sida Napæa* is an herbaceous perennial closely allied to *Hibiscus* in the form of the leaves. Its flowers, which are white, are rather small, but they are produced in great masses. I consider it to be a good plant for any place in which tall-growing plants are required, several shoots being over 8 ft. in height. *Erythrina laurifolia*, with stems nearly 10 ft. high, was in full bloom. *Shepherdia canadensis*, a shrub closely allied to *Eleagnus*, but with larger whitish leaves and brown stem, deserves to be planted more generally in gardens than it is. Perhaps the most beautiful amongst deciduous shrubs was a specimen of *Vitex Agnus castus*, which measured about 8 ft. through, and was bearing one mass of blue flowers arranged in plume-like panicles. Its scented leaves, combined with an elegant habit and pleasing flowers, made this shrub very attractive, especially as it flowers in the end of the summer, a time when most of the deciduous shrubs have ceased flowering. *Sambucus nigra laciniata* proves to be a very handsome shrub, the shape of the leaves being very peculiar and the growth restricted, which is generally not the case with other Elders, which soon outgrow their positions. On the rockery I observed two species of Creeping Juniper labelled *J. nana* and *J. Sabina nana*, neither of them higher than 6 in. Their glaucous hue made them very attractive, covering, as they did, a space of several square feet.—LOUIS KROPATSEN, *Löwenburg*.

THE FRUIT GARDEN.

PECULIARITIES OF DIFFERENT GRAPES.

A STUDY of the peculiarities of some of the Grapes under cultivation, and which are found rather difficult to grow, would often, no doubt, promote greater success in their culture than is at present experienced. The Golden Champion, for example, is one of the best-abused Grapes in existence, though no one denies its good qualities as regards size of bunch and berry and flavour, when it does well; but it has often occurred to me that if it could be grown by itself and subjected to special treatment where required, it would turn out different from what it does in a general way. Cracking and blemishes are its great fault, the skin being very tender and susceptible of injury from any cause. The Vine itself is a rampant grower. Had we the convenience we should certainly make the experiment of devoting a house to it and treating it by itself. At present it grows in a Vinery, in a mixed collection, which is forced tolerably early, and sometimes the crop has to be pushed, which does not suit the Champion. The more it is forced the tenderer it becomes, and if hard forcing is prolonged beyond a certain period, cracking and spotting can hardly be avoided. At times, when we have been able to keep the house quite dry and airy from the time the fruit began to change, the difference in the berries has been quite perceptible; decay has been arrested, and they coloured beautifully. The Golden Champion is a Grape which, I think, does best when ripened in July or August, but it must not be hurried, and it should at all times have a dry, balmy atmosphere and plenty of air. It is a Grape, I should think, that would do well in the open air under favourable circumstances. Another peculiarity of this Vine is its unproductiveness when trained on the spur system and closely pruned. It bears best on the young wood. What applies to the Champion applies also to the Duke of Buccleuch, but the latter is not so apt to crack and blemish, at least with us.

This season we have, for the first time, had some fine and well-finished bunches of Venn's Muscat. Hitherto it has presented all the faults of the Muscat Hamburgh, and produced a large proportion of stoneless berries; but this season they have set evenly and finished well, and the bunches have been of a good size. With the exception of a very slight difference in the leaves, this Grape is just the same as the Muscat Hamburgh, and is a vigorous grower.

A contrast to Venn's Muscat is Pearson's Golden Queen, which is one of the most unailing croppers I have ever known. This Vine is also a very vigorous and certain grower, and is likely to become a favourite as a cropper, particularly for market purposes. The bunches are handsome in shape, always show in abundance, and never fail to set evenly, and finish and keep well. In colour and flavour, however, it is second-rate. The berries acquire a yellowish tinge, but the colour is not clear like that of the Muscat of Alexandria. Where a profitable crop, is however, desired, it is a Vine to plant. We have taken from a young Vine here, 10 ft. long exactly, over 17 lb. of fruit this season, which is at the rate of about 36 lb. to the 20 ft. rafter, or 72 lb. to each 4 ft. light, as we grow the rods 2 ft. asunder, and the Vine shows not the least signs of distress in any way. The leading cane is very strong, the leaves large and thick, and the side shoots above the average strength. I have little doubt that it would have borne at least twice as much again without injury. Last year it bore a proportionately heavy crop on a 6 ft. rod. The Vine showed more than twice the above number of bunches.

A grand Grape, when it finishes well, is the Madresfield Court, and a fine exhibition variety but for its liability to crack, in which respect it is, however, very erratic. Two Vines here, propagated from the same source, behave quite differently. One, growing in the middle of the Lady Downes's house, produces good-sized bunches and berries, not much less than Muscats, that rarely or never crack; the other Vine, at the end of the same house, where it gets most sunlight and heat, always shows the greatest quantity of bunches, which are not so large as in the other case, nor the berries either, but they colour better, being generally fairly well finished in that respect, and well flavoured, but they always crack more or less. And this has been going on now for nine years. The cracking or bursting of the berries has been over and over again attributed to distension caused by an over-supply of sap, by some cultivators who have had to contend with the evil, and some have professed to stop the bursting by cutting the shoots half-through below the bunch; but that has not had the slightest effect in our case. The berries do not burst on the most vigorous Vine, but on the weak one. My impression is that cracking, both in this and other Grapes that manifest the same tendency, is due to the atmospheric or external causes as much as anything else. The Chasselas Musqué Grape is a bad cracker as most cultivators know; but even although the berry may be rent from one side to the other, it does not prevent the skin from giving way in other places, as might be expected if distention

from within was the cause. In all cases slow growth and moderate and dry temperatures seem to be better preventives than anything else.

This brings me to the subject of the time of ripening of different varieties; for in mixed Vineries great success is not likely to attend the cultivator unless the varieties to be grown together are assorted with judgment. It is quite common, but not so much now as formerly, to see the Muscat of Alexandria and Black Hamburgh grown in the same house; but they are an ill-assorted pair, and one or the other is likely to suffer by the companionship. In skilful hands both may, of course, be grown side by side, but few good Grape growers attempt to do so if they can help it. When it is considered that the Muscat takes nearly two months longer to ripen than the Hamburgh, even in a much higher mean temperature, it must be obvious that they cannot both succeed well under the same treatment. If the temperature is kept up and prolonged to ripen the Muscats, the Hamburgh's soon shrivel, and both wood and foliage suffer; whereas, if the house be kept cool after the Hamburghs are ripe, the Muscats remain green, and often shrivel prematurely. And what applies to these two varieties applies also to other sorts that differ widely in the same way. The Black Hamburgh, Black Prince, Buckland Sweetwater, Royal Muscadine, Golden Champion, Duke of Buccleuch, Muscat Hamburgh, Madresfield Court, Foster's Seedling, Grizzly Frontignan, Pearson's Golden Queen, and West's St. Peter's are all sorts that will succeed tolerably well together, although there is as much as a month or more of difference between some of the sorts, if not six weeks. It would be much better to separate those named into two groups, however, in which case we should place Golden Champion, Duke of Buccleuch, Golden Queen, West's St. Peter's, and Madresfield Court together in a later house, and treat the others as the earliest. This arrangement is the best, even if it should necessitate small divisions. Of the last-named varieties, West's St. Peter's, a fine old Grape and good keeper, is the latest; Golden Queen next. The other three come in about the same time, and succeed the Black Hamburgh.

Barbarossa, Syrian, and Raisin de Calabre, and, indeed, all the latest Grapes, succeed well along with the Muscat of Alexandria; but the first three require, if anything, more heat than the Muscat to ripen them perfectly, and should have the warmest end of the house. Lady Downes and Black Alicante will ripen and do well in the Muscat house also, but they require less heat than the latter, and do better by themselves, or in the coldest end of the house. There can be no doubt that the arrangement of the different varieties of Grapes into groups that grow and ripen and keep well together is by far the best and most economical plan, and it should always be carried out where practicable.

J. S. W.

PEACH TRELLISES AND BORDERS.

THERE are two ways of training Peaches under glass in this country. One—a common way—is to train the trees planted in front to a short trellis, perhaps from 6 ft. to 8 ft. or 10 ft. high, according to circumstances, and those on the back to the wall, which is usually occupied by "riders." The object of shortening the front trellis is to admit light to the back trees, and this arrangement is contrived in the conviction that more space is obtained, and consequently more fruit. That a little more space may be obtained when the front trellis is depressed away from the glass, as well as shortened, I do not doubt, but that the crops are more plentiful in consequence I do not believe; and in that conviction I have done away with all our back trellises in both early and late Peach houses, and now train the trees up under the roof, about 1 ft. from the glass, right from the base line in front to the top of the back wall, and we have much better crops than were gathered by the old plan. The space obtained is a little less, but that is more than compensated for by the position which the trees occupy, being nearer the glass, and as regards ventilation, on the back wall the bottom portions of the trees would be from 7 ft. to 10 ft. from the glass, and an experienced cultivator knows what that means in the case of plants grown under glass for any purpose. I have invariably noticed that front trees, when confined to a short front trellis, such as has been described, make a thicket of growth annually at the top of the trellis, which has of course to be cut entirely away as fast as it grows, thus destroying the energies of the trees and their fruitfulness. And it is the same on back walls where the standards have just about the same amount of head room. How much better, then, would it be to let the trees grow and have fewer of them, of good size and development, instead of a number of dwarfed specimens that can only be kept within bounds by mutilation of the roots and branches.

The old trees at Chatsworth show what can be accomplished by the plan here recommended. It is a curious fact too that, no matter how dwarf the trees may be kept, they are, as a rule, allowed the same extent of border. We could point to plenty of instances where

the roots have nearly 20 ft. of scope, and the heads about half as much, or less. The consequence of this disproportion between the feeding room of the roots and the development permitted to the branches is, of course, an annually recurring rank growth, only kept in check, when opportunity permits, by root pruning. When circumstances compel anyone to keep their trees small and low, the extent of border should also be restricted. In a long Peach case that we looked through not long ago, the front trees had only a 6 ft. trellis, and a 14 ft. border outside, whereas they might have had top room to the same extent had it not been for the fear of shutting out the light from the back wall—a simply exaggerated way of “robbing Peter to pay Paul.” In this case a border 3 ft. wide would have been more suitable for the front trees, as then the trees would have made less rank growth and more bearing wood in this confined condition. The best plan by far, however, is to give the tree tops room. If it be a question of expense in building, take it off the length of the house and add it to the width; but, under any circumstances, let the trees have as much room as they require, or nearly so, and they will amply repay it. When one has to begin cutting back the shoots of a tree annually, in order to keep it within certain bounds, it is then the trouble begins, at least in the case of stone fruits. I have been trying it here for the sake of having a Peach and Nectarine tree in each division; but, although the trees are still young, and have as much room each as is generally allowed in Peach houses, I have given it up, and purpose very shortly throwing our two earliest Peach houses into one, and devoting the whole space to two trees instead of four.—*Ed. Id.*

LAYERING VINES.

THE plan of raising Vines from layers just published by a contemporary and credited to Mr. Miller, of Combe Abbey, as its originator, is not new. Mr. Miller's plan is first to encourage long supernumerary shoots from the base of his permanent fruiting Vines, and for which room must be found at the expense of the latter. These rods he layers the following year, each in a row of 10-in. pots set closely together thus getting several young canes from each rod, and which are trained up amongst the permanent Vines till established in their pots and fit to be removed—a system of crowding sadly at variance with that of thin training once advocated by Mr. Miller when his name was oftener before the public as a Grape grower than it is now. Whether the practice is worth advocating for general adoption may be questioned, but it certainly does not differ essentially from that recommended by Loudon some fifty years ago—more or less—and often practised since, though considered rather out of date. Loudon does not recommend the canes to be layered their whole length like Mr. Miller, but like him he selected supernumerary shoots after they had begun to grow, and depressing the most likely layered them in pots at their junction with the old wood, and the result of this practice is thus described. He says “In about a week or ten days roots are found to have proceeded plentifully from the joint of last year's wood, and these may be seen by merely stirring the surface of the earth; or sometimes they may be observed penetrating to its surface. The layer may now be safely detached. Very frequently it contains one or two bunches of Grapes which continue to grow and come to perfection. A layer cut off at the beginning of July generally attains by the end of October a length of from 15 ft. to 20 ft. A new Grape house, therefore, might in this way be as completely furnished with plants in three months as by the usual method, above described, in three years!” It will be seen, therefore, that Mr. Miller has virtually returned to an old plan, and if it answers the purpose well and good; but, according to Mr. Miller's own showing, the Vines produced are no better, if as good, at the end of the first season's growth than Vines produced from eyes. “Some” of his Vines, he states, reached beyond the top of the house the same season, but it is quite a common thing now to see Vines from eyes that have *all* reached the top of a lofty house the same season, and considerably beyond it, and produced canes of such strength that 3 ft. or 4 ft. of bearing wood would be left at pruning time, whereas Mr. Miller found it necessary to cut his down “to within 1 ft. of the ground,” in order to secure a strong growth at the end of the third year from the time he encouraged the supernumerary rods from the permanent Vines that were in their turn layered in pots. An equally good plan of layering pot Vines, which does not entail the necessity of running out long rods from the permanent Vines, as at Combe Abbey, is to layer right and left from unpruned spurs at the base of the Vine. Half-a-dozen Vines may be layered from each Vine if desired, but one or two on each side are enough. By this plan, the whole of the vigour from the parent Vine is directed into the pot plant, and a fine cane is the result. I have seen the plan put into successful practice now and then, and, though not at all new, it is in my opinion, superior to the plan of growing long rods specially for the purpose the year previous. When these are grown

it must necessarily be at a sacrifice of space that could be more profitably devoted to the production of fruit. All things considered, however, and especially the result of Mr. Miller's experiment, I doubt very much if the old layering system will ever be revived in a general way. C.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

The Curl or Blight in Peach Trees.—There can be no question that the past season has been most disastrous to Peach and Nectarine trees on open walls, and doubtless many at the present date will be considering whether it is better to depend solely on crops grown under glass or to replant against open walls, as it is no exaggeration to say that the majority of the trees which I have seen this year out-of-doors are past recovery; in fact, I quite agree with “A. S.” (p. 253) that when Peach trees get into a sickly condition it is good policy to root them out altogether, and start afresh with young, healthy trees. Here Peaches and Nectarines grow extremely well, and at the present time are covered with fine, healthy foliage, and full of bearing wood. We only protected with double fish nets, yet we have very fair crops considering the season; they are late in ripening, but still of good average size and flavour. Our soil is rather a strong adhesive loam, in parts approaching clay, but it rests on a soft, porous, broken stone called hassock, that retains moisture in hot seasons, and acts as drainage in wet, cold ones, and to this I attribute the healthy look which our Peach trees possess. It is during the first stages of growth that Peach trees require particular attention, as if the first set of leaves are more or less damaged with curl or insects, growth for the season is checked, and no matter how much wood is made later, it is all but useless, owing to the impossibility of ripening it in the open air.—J. GROOM.

—A writer in the London GARDEN in speaking of the sudden prevalence of curl in the leaves of the Peach and Nectarine, thinks it comes from stagnation of the sap. He justly remarks that it cannot be aphides, as these insects are not always present. Nor does he think it the effect of cold, as its severest attacks were not on the heels of any severe frosts. It is singular how slow observers are in finding out that it is caused by an internal fungus, similar in its operation to the rust in wheat, which first grows inside, and when circumstances favour it bursts through the epidermis and becomes conspicuous. We published the results of some observations on this disease in 1853, in which report it was stated that “the cold-weather theory could not apply, as the disease sometimes appeared after a continued series of warm days, and the young opening leaves showed the disease when they had never been exposed even to a cold night. It made its appearance when no aphides were detected even with a powerful achromatic glass, and in new leaves which had been exposed to fresh air but a few hours and on which the insect had never set foot.” Distinct observations were made about the same time, showing by means of a powerful magnifier the minute parasitic plants in the pulp of the leaf beneath the translucent epidermis, in young leaves opened by the hand for the first time. The remedy, or rather preventive, is the promotion of vigorous growth, feeble trees being most liable to its attack, and strong growers most effectually resisting it.—*Country Gentleman.*

Melons in Pots.—Melons are generally planted out in houses or in hotbeds, both of which entail a considerable amount of time and labour. This season, desiring to have Melons with as little labour as possible, we determined to grow them in pots. About the middle of June our pot Vines being all cleared out, we plunged our Melons (previously prepared for the purpose, and in 11 in. pots) in a bed of leaves, and trained them in the ordinary way up a trellis. We allowed them to grow to their full length before stopping them, and after the laterals showed fruit, they were stopped at the first leaf beyond the fruit. In this way we were able to cut three or four Melons from a plant, averaging three and four lbs. each, and one of them weighed 6 lbs. 2 oz. The Melons are now all cut, and Cucumbers, also in pots, occupy their places. Cucumbers grown in pots are better able to withstand the disease than planted out; at least that is so with us; indeed, we never have been troubled with it. One lot of plants in 11-in. pots are ten months old, and fruiting still. We find Dell's Green Fleshed Melon to do well in pots; on some of our plants we had four beautiful fruits. It is a free setter, strong in constitution, and good in flavour.—J. W. B.

Turkish Trade in Hazel Nuts.—A considerable trade has sprung up of late years between the Trebizond district and Great Britain in the article of Hazel Nuts, which are a very important source of wealth on the coast extending from a little south of Batoum to Kerassund. Upwards of £20,000 worth per annum are shipped to England, the chief supplies of the best nuts coming from Tireboli, between Kerassund and Trebizond. Walnut trees, too, are largely

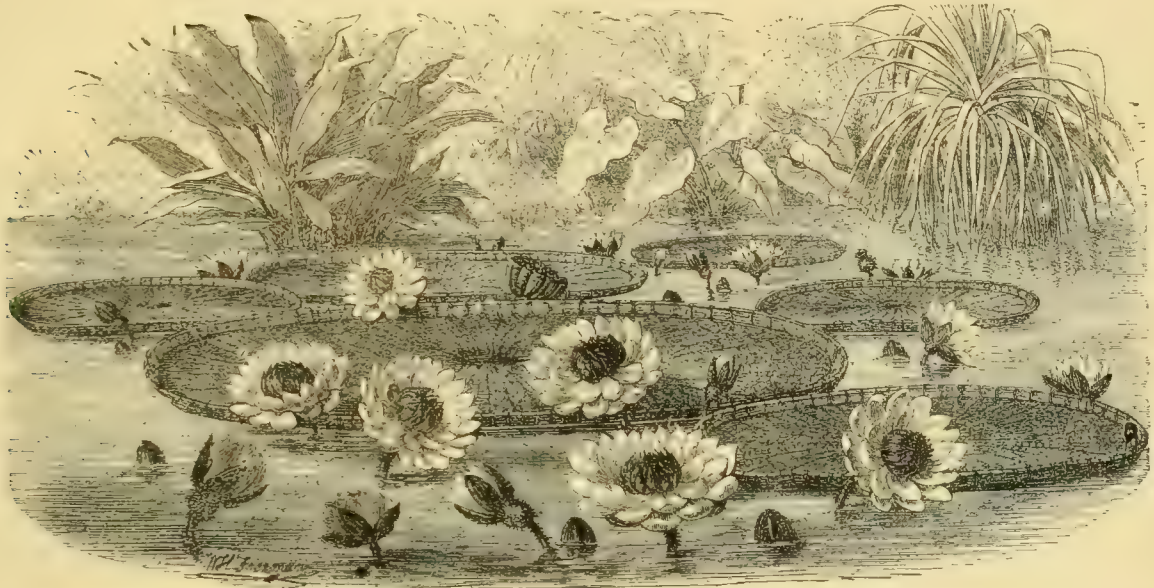
grown in the forests of Lazistan, partly for the sake of the Nuts, but principally for the Walnut tree knobs, which are much in request in France.—*Times*.

THE INDOOR GARDEN.

INDOOR WATER AND WATER-SIDE VEGETATION.

AQUATIC plants belonging to temperate regions are always interesting objects to look upon, but no combination of them can equal the display produced by a concentration of the aquatics of the Tropics. They produce flowers of almost every shade of colour, and some possess the most striking foliage to be met with in the vegetable kingdom. The *Nymphæas* which constitute so important a family of aquatics, chiefly inhabit the still waters of the northern hemisphere, though in the southern, some few are found, the most remarkable of which is the *Victoria regia* or Water Maize of the Brazilian. It is indigenous to the rivers of Guiana, the tributaries of the Amazon, and the La Plata. It was first discovered by the botanist Haenke in 1801, but it was not until 1837 that it was brought into prominent notice by Schomburgk, who discovered it

12 in. in diameter when fully expanded, and very fragrant. The outer petals are white, while the inner ones and stamens are pink, changing to a deep rose. The flowers are of short duration, seldom opening more than twice; they expand in the afternoon, and remain open until the following morning, and after the final closing they sink below the water to ripen their seed. For the successful culture of this Lily a water temperature of from 80° to 85° is necessary, and a soil rich in organic matter. A compost of good loam, leaf-mould, and thoroughly decayed manure in equal proportions would be the most suitable. A mound should be formed of three loads of this soil heaped over one load of brickbats, and the water requires to be let into the tank and heated several days before planting, which should not be later than the middle of April. In order to have the young plant in a vigorous state at this time, the seed should be sown early in January, using a soil of equal parts loam, sand, and leaf-mould. If attainable several seeds should be sown, and after a slight covering they should be plunged in water having a temperature of from 85° to 90°. Thus situated the seedlings appear in from two to three weeks; three or four of the most promising of them should be selected, and grown on, using 4-in. pots and the same soil as that just named. Although one plant is sufficient, it is better to be provided with others in case of failure; their crowns should be kept just beneath the surface of the water, and fully exposed to light; by the



The Royal Water Lily (*Victoria Regia*) and other Aquatic Vegetation.

in the river Berbice. It was first established in this country in 1848 after several unsuccessful attempts had been made to introduce it. The annexed illustration represents this regal Water Lily in its native habitat, where its vast leaves and flowers are produced so abundantly as to frequently monopolise the entire water surface and impede navigation. Associated with it, are usually the Great Water Reed (*Gynerium saccharoides*), called in the West Indies the White Rousseau, a plant which bears plume-like panicles 2 ft. or 3 ft. in length; large aquatic Arums (*Philodendrons*) and *Cyclanthads* which, though not really aquatics, occur frequently on the river margins of tropical America.

The *Victoria Regia*, though no doubt a perennial in its native country, is treated as an annual in England. Unlike the other members of the family, it never forms either tubers or rhizomes, but produces in favourable seasons great quantities of seed, which are used extensively for food by the natives of the parts where it is found. Owing to its enormous dimensions, few establishments possess convenience for growing it, but, where space could be afforded, its unique appearance would amply repay all trouble bestowed upon it. It attains its maximum size in August, when its leaf-stalks measure frequently 12 ft. in length, and the leaves from 5 ft. to 6 ft. in diameter. The under surfaces of the leaves are remarkable for their conspicuous ribs, which project to the extent of from 1 in. to 2 in., and divide the leaf into quadrangular compartments. The flowers, which rise a few inches above the water, are from 10 in. to

middle of March they will require a 9-in. pot, which will afford them sufficient root-room until the time for planting out, when they should be furnished with five or six leaves, the largest measuring from 6 in. to 8 in. across; and in planting, the mound of soil should be high enough to allow the leaves to float. In order to secure good seeds the flower when fully expanded requires to be fertilised, and the capsules should be enveloped in muslin, after the decay of the floral whorls, to prevent the seed from escaping.

As an Old World representative of the *Victoria regia* we have *Euryale ferox*, which, though not possessing such noble proportion, has a structure very similar to that of the *Victoria*; it however differs in the arrangement of its inner stamens, violet flowers, and more spiny foliage. It requires precisely the same culture as the Royal Water Lily, but a much less quantity of soil. It is confined to the waters of East India and China.

The Tropical *Nymphæas*, though surrounded by the same conditions, as the foregoing during the growing season, require special treatment as regards soil, potting, and resting. All the species at present in cultivation have perennial tubers, varying from 1 in. to 4 in. in length, and are either globular, oblong, or branched, with a very hard black outer coat. The bases of the unbranched ones are round, with a conical growing point at the opposite end, and the divisions of the branched ones are terminated by growing points. They are gross feeders, and should be potted in a rich loam with a good admixture of leaf-mould and river sand; the stronger growing kinds

require to be grown separately in 15-in. or 18-in. pots, and the smaller sorts either separately in 12-in. pots, or in threes together in the larger sized ones. In potting very little drainage is required, a few large potsherds placed the hollow side downwards are all that is necessary. The pots should be filled firmly to within 3 in. or 4 in. of their rims, then the tubers should be pressed into hollows surrounded with sand to prevent the soil coming in contact with them, and care should be taken to keep the growing points upwards; the pots may then be filled to the rim with soil consisting of equal parts sand and loam. The stronger kinds require a depth of 18 in. of water above the crowns, but the depth above the tenderer sorts should not exceed half that amount. Their after culture consists chiefly in keeping the water at a uniform temperature from 80° to 85°, and clear of Confervæ and dead foliage, and they in common with all the other aquatics enumerated here, never require shading. The seeds, which ripen in two or three weeks after the flower-head sinks beneath the surface of the water, germinate quickly, and the seedlings, if grown on, will bloom the following summer. After the plants have become denuded of foliage, which usually occurs in October or November, the pots should be removed, and placed half their depth in water of a much lower temperature than that in which they have been growing, and the tubers should be left undisturbed until the potting season, but the plants must be kept immersed so long as they remain active.

Several of the finest *Nymphæas* which inhabit the waters of the Upper Nile have yet to be introduced. Some of the best of those already in cultivation will be found amongst the following:—

N. Lotus.—The leaves of this are peltate and have a deep sinus or incision at the base, they are orbicular or ovate in outline, and from 4 in. to 6 in. in length; their upper surface is bright green, while the under surface is prominently veined, and ornamented with violet blotches. The flowers, which are pinkish white, are from 4 in. to 6 in. in diameter, and the stamens are yellow with reddish bases. It is common to *N. Africa* and *Tropical Asia*.

N. rubra.—This and the three following are said to be varieties of *N. lotus*, but if so they differ widely from the type. The leaves of *N. rubra* are orbicular from 8 in. to 10 in. in breadth, and boldly toothed at the margins; they are brownish-green above, and plum-coloured below with the exception of the veins which are green and very prominent. All the parts of the plant under water are pubescent. The flowers are rosy crimson and from 5 in. to 7 in. in diameter. The sepals are green on the outer side and striped with pink, and the petals are concave and arranged in three whorls. The stamens are numerous and of an orange-brown colour. It is a native of North and East Africa.

N. rosea.—In dimensions this comes near to the preceding, but it varies from it in colour. The leaves are of a bronzy-green with conspicuous green veins, and the flowers are of a clear rose-pink with orange stamens.

N. dentata.—This is a bold free growing plant and one which throws up its young leaves erect and above the water (probably owing to its shallowness). The mature leaves, which are orbicular and from 10 in. to 14 in. across, are bright green, regularly toothed, and free from blotches. The flowers are pure white, and measure from 6 in. to 10 in. in diameter, with elliptic-acute petals, and bright orange stamens. It is a native of West Africa.

N. thermalis.—This partakes of the character of *N. dentata*. Its leaves are from 9 in. to 12 in. in diameter, their upper surface being dark green and the lower one dull green blotched with violet. The flowers, which are white, have oblong-obtuse petals and yellow-stamens. It is found in the river Pecze, in Hungary.

N. Eugenie.—This, though somewhat similar to *N. rosea* attracts a greater size. The leaves are from 9 in. to 12 in. in diameter and have an upturned toothed margin, and when young they are blotched with purple on the upper surface and the leaf stalks often grow to 8 ft. in length. In colour the flowers are rose-pink with concave petals 3 in. to 4 in. in length, and reddish orange stamens. It is a plant of garden origin.

N. Devonensis.—This is a very stout-growing plant with dark bronzy leaves, which are frequently 14 in. in breadth, and margined with large spiny teeth. The flowers are from 6 in. to 10 in. in diameter, and of a deep rosy-crimson, with dark orange-red stamens. It is also of garden origin.

N. gigantea minor.—It is doubtful whether the type (*N. gigantea*) is in cultivation, but the introduced plant is the finest of the blue-flowered *Nymphæas*. Its leaves, which measure from 8 in. to 12 in. across, are orbicular-ovate in outline, and irregularly toothed at the sides, with the basal lobes overlapping each other. The upper surface is bright green, while the under surface is dull red, with the veins sunk into the substance of the leaf. The flowers are from 6 in. to 8 in. in diameter, and of a clear porcelain blue. The petals are

obovate, semi-transparent, and arranged in numerous whorls. The stamens are numerous, rather small, and of a bluish-white. It is a native of Australia. A noteworthy feature of this plant is that its flowers expand widely, and remain open during the whole of the day, whereas most *Nymphæas* rarely open so widely, and are usually closed after mid-day.

N. stellata.—This is a very slender species, but one which produces a great quantity of foliage and flowers. Its leaves, which are roundish-oval, have entire margins, and a deep, narrow sinus; the upper surface is bright green, while the under surface is copiously blotched with violet. The flowers are star-shaped, and of a light azure blue, with a light centre. The petals are lanceolate, and the stamens light blue, with sulphur-coloured anthers. *N. cyanea* is a variety with darker blue flowers. It is a native of East India.

N. scutifolia.—This dwarf-growing species from the Cape has leaves ovate or cordate, and from 6 in. to 8 in. in length, the margins being irregularly jagged and toothed; both surfaces are bright green and glabrous, and free from blotches. The flowers, which have the same character as those of *N. gigantea*, are from 3 in. to 6 in. in diameter when fully expanded, and of a clear porcelain blue.

The Sacred Bean (*Nelumbium speciosum*) is another noble aquatic plant, with large peltate leaves and rosy flowers, elevated on long stalks from 4 ft. to 6 ft. above the water. It inhabits the muddy shores and lagoons of East India, and hence requires to be grown in shallow water. Its rhizomes, which are of great length, produce at intervals stout tubers from 6 in. to 8 in. in length, from which arise the leaves and flowers. Whether for culture in tubs or beds, it requires a depth of 1 ft. or so of sandy loam and leaf mould. Upon this the rhizomes should be spread out and covered to the depth of a few inches with sandy soil. It requires the same temperature as *Nymphæas* and no more than 6 in. of water above the soil. It is propagated chiefly by its tubers, which grow rapidly and produce numerous offsets.

In addition to the above there are several other interesting tropical aquatic plants which could be associated with them, such as *Limncharis Plumieri*, a kind with glaucous foliage and umbels of yellow flowers; *Limncharis Humboldtii*; *Pontederia crassipes*, a species having kidney-shaped leaves upon inflated foot-stalks; *Pistia stratiotes*, with glaucous pubescent foliage; *Jussiaea natans*, with yellow flowers, allied to the *Enocheras*; *Ceratopteris thalictroides*, an aquatic Fern, *Cyperus alternifolius*, *Papyrus antiquorum*, and several aquatic Grasses. Z.

AUTUMN TREATMENT OF PELARGONIUMS,

LARGE flowering Pelargoniums generally are holding on much longer than usual, owing, no doubt, to the late spring and the cold and moist summer, with so little of sun heat. September is the month, however, when the plants, cut down early, are in ordinary seasons sufficiently broken into growth to be ready for repotting. After the plants have done blooming, the usual plan is to place them out-of-doors to ripen their wood, laying them on their sides if necessary, in order to facilitate this. When the wood is ripe, and fit for making into cuttings, the plants are cut back hard to the old wood, and suffered to break into growth to the extent of $\frac{1}{2}$ in. or so, when they are ready for repotting. In the act of repotting, cultivators make a practice of shaking out the soil from the roots, and then cutting back the long, hard, spreading roots, leaving all those of a fine, fibry character; the plants are then repotted into a smaller-sized pot than that they were turned out of, the great point being to get as rapid root action as possible, so that no check occurs to the growth of the branches. A pot just large enough to take the roots will be sufficient for the first repotting. In the act of potting it is very important to well drain the pots; the importance of this in its relation to the show Pelargonium can hardly be over-estimated. When the plants are repotted, they require to be kept close for a few days, watering carefully at first, and increasing the supply if demanded by the state of the weather, when the plants begin to make fresh roots.

Soil is a matter of some importance, and an excellent compost can be made up of rich fibrous loam, well decomposed stable manure, some good leaf-mould, and about half-a-pint of rough Bedfordshire sand to a bushel of the compost. Some cultivators of Pelargoniums adopt the practice of storing up for use a quantity of the loam just described and stable manure, either putting it in a heap in layers or mixing it up together, and leaving it for a year before it is used.

When the plants that have been repotted show signs of growing, a slight sprinkling overhead in favourable weather will be of advantage, and plenty of light and air should be given when they can be afforded without harm to the plants. It is the usual practice to stop the shoots when they have grown to the length of 2 in. or 3 in., doing this about November. If a batch of plants are wanted for

specimens to flower in May they should be shifted early in November into 9-in. pots, and not be stopped any more. Any grower having a collection of fifty or so varieties can so arrange his plants, if he has the necessary glass accommodation, as to secure a succession of bloom all through the summer by repotting late and by judicious stopping. In the nurseries where a large stock of show Pelargoniums has to be provided the months of August and September are busy ones, as the work of propagation has then to be pushed on with energy. Some spent hotbeds are frequently utilised for the early cuttings, and these are put into a good light, sandy soil in lines, and kept shaded from the sun, when they soon make root. The later cuttings are put into store pots, and placed in a small, close house, or on the shelves of the Pelargonium house. As the cuttings root and show signs of growth they are potted off into 3-in. pots, and the strongest into 4½-in. pots for sale.

As plants can be had in the nurseries in the autumn, I append a list of thirty varieties that would make a rare collection. Some of them are new this year, but the price will no doubt by this time have become somewhat reduced. The following come under this heading: Arthur, Bertie, Crusader, Diana, Dictator, Fortitude, Illuminator, and Silvio. A list of older varieties, but which also includes a few nearly new, may consist of Ambassador, Amethyst, Aurora, Bertha, Claribel, a fine old white variety; Dauntless, Despot, Eurydice, Evelyn, Invincible, Jubilee, Lilian, Lord of the Isles, Magnificent, Negress, of such a hue of dark maroon as to be almost black; Omar Pacha, Patroness, Prince Rupert, Prince of Prussia, a very old white-flowered variety that yet remains a great favourite with many; Sappho, Scottish Chieftain, Sultana, and Viscount. This list can be extended almost indefinitely, but the foregoing selection is a fairly comprehensive one.

R. D.

TREATMENT OF ODONTOGLOSSUMS.

PERMIT me to thank Mr. Goldring for his communication on this subject (p. 248). The Odontoglossums are likely to become more extensively cultivated than any other class of Orchids, so pretty and attractive are they, as well as comparatively easy to grow, and any information regarding their culture is sure to be welcomed. There is no denying the fact that as at present cultivated in this country, fine plants are produced, but that is no reason for supposing that if treated a little differently still greater success would not be attained. I have all along entertained the opinion that we have kept Odontoglossums too cold, too wet, and too dark, and been unnecessarily nervous about subjecting them to a moderately high temperature: and I submit that the fact that they can be grown successfully in the United States, where the summer temperature is high, settles the question. An eminent authority recommends a temperature from 10° to 15° below the mean summer temperature of these islands, whenever that can be managed with the aid of shade and water, but he should have added "ice," for how such a feat is to be accomplished I cannot see, while the plants are still to grow under a glass roof. I rather think the figures usually recommended are greatly exceeded in practice; if it were not so we should not see such fine plants. When in Messrs. Veitch's nursery some time since, I found some of the coolest of the Odontoglossums growing and apparently doing well in a pretty warm structure. At one place, the authority I have already quoted says, "the front ventilators, and often the doors as well, are open continuously, unless when there is frost or cutting winds;" in other words, when the thermometer outside was above 32°. Our own experience corresponds more nearly with that of Mr. Goldring.

Up to the present season our Odontoglossums have been treated to a temperature about 5° to 10° below the stove temperature. Under this treatment they make two sets of bulbs in the year, and bloom mostly during winter and spring. Some dry small imported pieces of *O. cirrhosum* in the smallest of thumb pots, and with bulbs 1 in. long, and about the same in circumference, made, in two years, bulbs 4½ in. and 5 in. long, and proportionately stout; and during the past winter the same plants, then about three years old, produced spikes bearing fifty fine flowers, some of the varieties very large and fine in the flower. This season, in order to give the cooler system a trial, but principally to suit some other and cooler subjects in the same house, I reduced the temperature during the summer months considerably, turning off the hot water altogether as soon as it was thought safe to do so; and the consequence is the plants have made the least growth they have made yet during a summer, and they will be much later in flowering. I have been so struck with the difference that I had the heat turned on again towards the end of August, and raised the temperature. Very little shade, too, has been given in sunny weather.

Odontoglossum Alexandræ will perhaps stand as cool treatment as any variety. Some imported plants I bought at Steven's last April, and which were just showing signs of starting have made

good growth in the house before spoken of along with *cirrhosum*. In one case the shoots were 10 in. long, and had they received more heat they would have matured their bulbs by this time; yet the habit of this variety warrants us in believing that it would not only stand but be benefited by a considerably higher temperature. According to Williams it is found growing in Bogota between 7000 ft. and 8000 ft. above the level of the sea. Above this height and in a colder region, of course, is situated the capital of Bogota upon an extensive table land described by competent authorities as possessing a "singularly genial and salubrious climate," yielding productions that denote a tolerably high and even temperature throughout the whole year, being situated "on the verge of the equator." And although the country has two rainy seasons in the year, still its fruit and abundant Grain crops indicate periodical dry seasons as well. At a lower and warmer level, but in a climate in other respects similar, is found *Odontoglossum Alexandræ*, a fact which alone warrants the belief that such cool temperatures as have been recommended for this class of plants are unsuitable to their habits and wants, even after making allowance for our darker skies and long winters. In the table lands of Mexico and South America, which are so rich in cool Orchids, and especially in *Odontoglossums* perpetual summer reigns, and, we are told, the mean temperature varies exceedingly little, as might be expected in a country where the sun is nearly vertical throughout the year, a fact which must be taken into account in the case of plants from the colder zones of the tropical and sub-tropical regions where a high temperate summer climate only is experienced and no real winter.

C.

WINDOW PLANTS.

WHAT would many of our homes be without flowers? Dull, cheerless, and gloomy, and bereft of one of their principal adornments. That plants have a charm, is evidenced by the careful way in which they are watched and tended even in cottagers windows, where they are frequently crowded together in such a way as to almost shut out the light. When will our architects so design the buildings in which we live that we may have a few plants, which under such circumstances would be a real pleasure to behold? The extra cost of, say a bay window to a house would not be much, and the amount of enjoyment which it would afford is beyond measure. It may be asked, what can any one without a glass structure do to keep up a supply of flowers? to which enquiry I reply, he might do a great deal, as there are many plants that up to near the time at which they come into bloom succeed best out of doors, where they not only come shorter jointed and stocky, but are more floriferous when placed under cover. Take Fuchsias and Pelargoniums for instance, which if grown in windows become one-sided and drawn, but which, if placed in suitable spots, the one in partial shade under the friendly shelter of a wall and the other in full sun, are always sturdier and finer than they are in any other position. Besides these two, there are hosts of other plants that may be raised from seed annually or kept as bulbs, and for winter there are plenty of hardy subjects that are quite equal in appearance to tender exotics. It will be a help to many perhaps if I enumerate some and give a few particulars as to the way they should be managed, but the chief point at starting is not to attempt too much, as it is more satisfactory to grow a few well than to have a quantity inferior as regards merit.

The great disadvantage under which many labour is not having suitable soil, and yet it is astonishing what results may be attained with even street scrapings, especially if in collecting them they are largely mixed with the droppings from horses, which, containing as they do so much vegetable matter, help greatly in keeping the whole open and porous. All that is necessary to make the compost perfect and suitable for most plants are a few rodules of turfy loam and peat, both of which may be obtained at any nursery at a moderate rate of cost. The mistakes generally made by inexperienced cultivators in potting plants are not using sufficient drainage, and filling the pots too full of soil, but a more frequent complaint perhaps than either is the quantity of water which they give and the way they allow them to stand in it and drown. More plants are injured and lost in this way than in any other, as it not only soddens the earth, but causes the roots to decay. Some will stand it and enjoy it, but they are only the few, such as the well-known *Calla æthiopica* and *Mimulus*, both of which are half aquatic in character. The drainage then being such an important matter for the others, the first preliminary to potting is to carry that part of it out properly, which is best done by first placing an oyster shell over the hole, and covering it to a depth of ½ in. or so with small cinders or charcoal. These will afford a ready outlet for the water, and if the pots do stand in the little that drains through at this time of year it will not be productive of any great harm. In winter, however, it should be poured away, or taken out of the saucers by means of a coarse piece of sponge, which dipped in, soon absorbs the

whole without moving the plants. The common enquiry amongst amateurs is how often shall I water? which leads one to suppose that they expect plants require water with the same regularity as we do our meals; but instead of this there are so many varying circumstances connected with the weather and the varying state of the atmosphere, that no set time can be stated. The amount of leafage, too, that a plant has, and the body of soil its roots are in, have much to do with the quantity of moisture it will take up, and the instructions therefore in regard to this matter must be general. There is one thing of great importance, which is, when water is given it should be in sufficient quantity to wet the entire ball, instead of being administered in dribbles, as is too generally done. A good test of a plant's condition is to try the weight, or rap the pot, which if dry will ring, owing to the shrinkage of soil from its side; but if wet the sound will be heavy and laden. An experienced person, and one accustomed to look after the same plants, soon knows at a glance whether they want water or not, and until the necessary knowledge is gained it is better to err on the safe side than overdo them with water.

S. D.

TWINING FERNS.

(LYGODIUMS.)

THE Twining Ferns are all, with the exception of *Salpichlena volubilis*, included in the genus *Lygodium*. Their fronds become considerably elongated, and cling to and entwine any slender object within their reach, after the fashion of the common Birdweed. Their foliage, which is both delicate in appearance and firm in texture, is remarkable for the variety of incision which may be found on the same plant, and for its highly ornamental character in the fertile state. They are chiefly tropical in distribution, though not one species is common to the Tropics of both the Old and the New World. One species is found as far north as Massachusetts, in North America, and one species is confined to New Zealand.

In general appearance these Ferns depart considerably from the usual Fern character; but on examination it will be seen that this variance arises from a modification of their various parts. All the species have short, creeping, subterranean rhizomes, which branch in all directions, and produce a great quantity of tough black roots. The fronds are given off in



L. dichotomum (fertile frond, natural size).



L. dichotomum (barren frond, one-fifth natural size).

quick succession, the rachis of which often grows to the height of 20 ft. or 30 ft. The pinnæ, which are arranged alternately on the rachis, are rarely developed beyond the first pair of pinnules, though in the case of very old rachises the pinnæ sometimes branch again. These pinnules supply the place of an entire frond, and as one is the exact counterpart of the other, it will only be necessary in speaking of the foliage of the species enumerated below to describe the pin-

nules only. Propagation is effected mainly by division of the rhizomes, or sometimes by spores, which rarely germinate, except in the case of the temperate species *L. japonicum* and *L. palmatum*, both of which grow freely from spores. They require a free light soil, such as a mixture of good loam and peat in equal proportions, with one-fourth of the whole of river sand. They thrive best in a light situation, and require an abundance of water during summer. In order to keep up the fresh appearance of the plant, it is necessary to cut out



L. dichotomum (barren frond, one-fifth natural size).

several of the old growths every year to make room for the succession of young fronds. For covering balloon trellises or pillars, or for forming festoons, or furnishing hanging baskets they are specially adapted, and in a dried state few vegetable objects can equal them in elegance. The following eight are a selection from the twelve or fourteen species that are already in cultivation, though, with the exception of two or three, they are rarely met with:—

***L. japonicum*.**—This, though the commonest species in our gardens is one of the best on account of the deep-cutting of its foliage, and its free-growing property. The pinnules, which are triangular and from 6 in. to 9 in. in length, are divided into three or sometimes five pairs of triangular segments, which are inserted alternately. The lowest segments are deeply pinnatifid, with the lobes auricled at the base, and the tips ending in linear toothed points. The upper lobes are simply linear, or have two or sometimes three auricles at their bases. The lobes of the barren pinnules are finely toothed, while those of the fertile ones are fimbriated with small scaly spikes, which contain the spores. The plant may be grown to maturity in a 6-in. pot, and with this amount of accommodation will often produce a column of foliage 10 ft. to 12 ft. in height. It is a native of Japan, Ceylon, and N. Australia.

***L. venustum*.**—The segments of this plant are similar to those of the foregoing, but they are larger and have a different arrangement. The pinnules are oblong in outline and are from 9 in. to 12 in. in length, with three or rarely four pairs of lateral alternate segments and a terminal one, which is much larger than the rest and deeply tripartite. The lateral segments, which are shortly stalked, are palmate with the central lobe much enlarged, or oblong and pinnatifid at the base. The lobes of the barren pinnules are regularly and bluntly toothed, while those of the fertile pinnules are closely fringed small plaited spikes bearing the spores. The pinnæ of the plant are placed wide apart and are all densely hairy, and in this respect it differs from all the rest. It is a native of the West Indies, Mexico, and Brazil.

***L. scandens*.**—This species is somewhat rare in collections, and *L. japonicum* is frequently sold for it. The pinnules are simply pinnate, with two, three, or four-stalked segments on each side. The segments are of a light glaucous-green, and very variable in shape, being either cordate, oblong, or lanceolate; they are arranged alternately upon the zig-zag rachis, and the upper pair are frequently united. In the fertile state the segments are cordate or ovate, with their margins fringed with the sporiferous spikes, which resemble minute strings of green beads. With liberal treatment the fronds of this plant grow to the length of 20 ft. or more, retaining its lower

pinnules quite fresh-looking. It is a native of China, the Malayan Island, and West Africa.

L. dichotomum.—This is the stoutest of the introduced species. The main rachis usually attains the height of 20 ft. The pinnules are digitate, with from five to eight linear-lanceolate segments, which are of a bright emerald green. The segments of the pinnules nearest the base of the plant are usually 8 in. to 10 in. in

L. pinnatifidum.—In habit this comes near the preceding, and is nearly as vigorous. The pinnules are pinnate, and from 6 in. to 8 in. in length, with from five to seven oblong, alternate, shortly-stalked segments, the upper two of which are usually inserted at the same points, or sometimes united at the base. The segments of the barren pinnules are finely serrated, while those of the fertile pinnules are both serrated and fringed with the sporiferous spikes. The main



Lygodium palmatum

length, while those of the upper pinnules are about half that length. The segments of the fertile pinnules are much reduced in width, with their margins closely fringed with the scaly sporiferous spikes. The plant rarely becomes fertile until it reaches the age of from five to seven years from the sporeling state, but it is a strikingly beautiful climber in all its stages. It is a native of Hong Kong and the Malayan Archipelago.

rachis is reddish-brown, and the foliage is coriaceous, and of a dull light green. It is a native of the Himalayas, Malacca, North Australia, and West Africa.

L. palmatum.—In favourable situations this species is hardy in this country, though in structure it is the most delicate of the genus. The main rachis is straw-coloured and very slender, and the foliage is of a light glaucous green above, and paler below. The pinnules,

which are simply palmate with a cordate base, have from five to seven oblong-obtuse wavy lobes, the lowest of which are small and rudimentary. The leafy portion of the fertile pinnules—which are borne by this plant in a very young state—is almost entirely absorbed by the mass of sporiferous spikes, which hang in clusters resembling birds' claws. The foliage of this plant is collected in great quantities in the state of Massachusetts, North America, and when pressed is used as an article of ornament for the decoration of apartments. It is a native of the Eastern States from Massachusetts to Florida.

L. reticulatum.—This as its name implies has netted veins, a peculiarity also possessed by the following species. The main rachis becomes when old very tenacious, and resembles copper wire. The pinnules are simply pinnate, with five or seven pairs of sessile, triangular, or lanceolate segments, which are cordate at the base, and extend beyond the rachis. The uppermost pair are frequently united at the base. They are of a dull light green above, and bright green below. The fertile segments are cordate, and thickly fringed with the sporiferous spikes. It is a very rare plant, and difficult to propagate either by spores or division. It is a native of Polynesia and east tropical Australia.

L. lanceolatum.—The pinnules of this species, which have a tendency to point upwards, are from 4 in. to 6 in. in length, with a zig-zag rachis; and bear on the lower part of the plant from three to six segments each, while on the upper part the number is reduced to two, or sometimes a bipartite one. The segments are lanceolate and broadly crenelled, and are attached to the rachis by short stalks. The fertile segments have the margins fringed with the scaly spikes, but they are rather smaller in this than in the foregoing. The foliage is of a glossy green both above and below. It is a native of Madagascar.

C. M.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Ferns in Borders, Pots, and Passages in Glass-houses.—The excellent plan of covering surfaces usually left bare with graceful Ferns and Mosses is well carried out at Bodorgan by Mr. Eilam. The effect of the beds in which Palms, &c., are planted out is greatly enhanced by the surface being quite covered with Ferns of various sizes. In one case where the pipes rise so near the front of a house that no shelf for plants could be raised above them, a box of soil is placed the whole way along, and from it grow drooping Ferns, Mosses, and trailers. In another house, a passage covered by an iron grating is full of beautiful plants of our British Maiden-hair, the fronds of which are borne on longer stems than when grown in pots, and thus become more useful for certain kinds of decoration. Large pots containing specimen plants are also embellished with fragile kinds which will not exhaust the soil.

Violets from Runners.—Violets are abundantly grown in the gardens at Penrhyn Castle from the points of the runners inserted rather closely in frames. Put in in August they flower freely through the winter. V. *Victoria Regina* evidently does well in this way.

Two Good Indoor Dracænas.—I would strongly recommend D. Bausei and D. Baptisti to the attention of growers of this extremely useful family of ornamental-foliaged plants. The first-mentioned variety is compact in habit, and the leaves are broad and finely coloured, thus rendering it a highly suitable subject for room and dinner-table decoration. It requires to be isolated in order that its beauty may be fully appreciated; whereas its congener Baptisti is, on the contrary seen to best advantage when associated with other fine-foliaged plants of a light and graceful habit of growth, such as Ferns, Palms, &c. When thus placed it presents a striking and very ornamental appearance. These two varieties will undoubtedly, when well known, become great favourites for decorative purposes.—BY FLEET.

Davallia Mooreana as a Room Plant.—This strong and graceful Fern withstands the dry air of living rooms better than most other Ferns, hardy or tender.

Solanum capicastrum.—Where berry bearing Solanums are grown for winter decoration they should now be full of fruit just ready to change colour, so that when moved under glass they may quickly become available for decorative purposes. Although good plants may be grown the first year from seed, they are much easier formed into good sized shapely specimens the second season. Young plants intended for cutting down should be kept rather dry and cool during the winter months; about February they should be cut back rather closely, introduced into gentle heat, and slightly syringed until they break into young growth, when they should be shaken out and repotted in good rich soil packed firmly. A light shelf near the glass is the best position for them, and as the days lengthen they should be gradually inured to more air until they can be fully exposed; but in such a season as the present they are best plunged

in cold pits so that the lights may be drawn over them during heavy rains. When a good supply of berries is set, a top dressing of rich soil or rotten manure will greatly assist their swelling and give the leaves a richer colour. When well grown, Solanums are useful plants for conservatory or drawing-room decoration as they keep in perfect health in any cool structure from which frost is excluded. They make excellent dinner-table plants, their brilliantly coloured berries looking extremely well under artificial light, and at Christmas they are suitable either for church or house decoration.—J. GROOM, *Linton*.

Streptocarpus floribundus.—I observe (p. 265) that this is classed amongst stove plants. Instead, however, of its being a stove plant, it is simply a greenhouse or cold frame plant, needing not the least artificial heat in summer, and only a greenhouse temperature in winter. It is such a charming free-blooming plant that it should be widely grown, especially by those whose glass houses are limited to the growth of hardy or semi-hardy plants. I have no doubt that it would do well on rockwork or in sheltered places in the open air in summer. Plants of it may be raised from seed, which should be sown in a gentle heat in spring; these will bloom in the autumn and make fine plants the following summer.—A. D.

THE FLOWER GARDEN.

PLANTING OUT PRIMROSES, POLYANTHUSES, &c., FROM POTS.

I HAVE long been an advocate for growing some of these beautiful plants in pots to flower in winter and spring under glass; but I do not recommend any cultivator, except under unavoidable circumstances, to continue the plants in pots all through the summer. It greatly assists them to plant them out in May, allowing them to remain in the open air till September or early in October. Such a practice gives them a kind of liberty which they appear to enjoy, i.e., if they are planted out in a suitable place and in the right sort of soil. In my little garden I have some lines of pyramid Apple, Pear, and Plum trees 7 ft. apart, and in the shade of these I make up beds raised 3 in. or 4 in. above the ground level, and some 2½ ft. in width. These beds are deeply dug and thrown up rough in winter, and occasionally dressed with soot. In spring they are levelled down, and a layer of leaf-mould, sand sifted from gravel, and soil from the potting bench, 2 in. to 3 in. in depth, is placed over the top. The plants are turned out of pots, the crocks removed, a sufficient quantity of the soil is crumbled away with the fingers to leave the exterior roots free, and then planted out 6 in. to 8 in. apart, digging a deep hole and placing some leaf-mould and sand about the roots; the plants are then pressed firmly into the soil, and a little deeply into it. When the hot weather comes, some Cocoa-fibre is placed on the surface, and while the weather is dry, the plants are always well watered overhead. Treated in this way they succeed well and throw out numerous roots near the surface, which feeding on the fresh soil results in a healthful vigour. They are kept cool, have plenty of fresh air and occasional sunshine, and the danger from drought and consequent attacks of red spider, &c., which menace the plants when confined in pots, is reduced to a minimum.

Any plants that will bear division—that is to say, that have thrown up side shoots which have developed into independent-rooted plants—can be removed and planted out also; but unless the pieces divide freely, and, in addition, are well rooted, it is best to defer this work till the autumn, at the time of re-potting for spring blooming. Vigorous well-grown plants will furnish side shoots both in spring and autumn, and thus make rapid increase. I find small side shoots that are only imperfectly rooted, whether of Primroses, Polyanthus, or Auriculas, do best put round the sides of store pots in a light sandy soil, where they soon establish themselves, and grow into nice plants by the autumn. Such store pots are best put into a cold frame, in a shady place, or stood out on an ash bed in a cool spot, where they can be protected from heavy rains.

Those who grow these plants in pots, but have no convenience for planting them out, will do well to repot their plants by the time they have done flowering, as the soil gets sour by that time, and the roots require a change. It is best to shake the soil from the roots, and take off any rooted side-pieces, trimming the "carrot" as the main root is termed, as in the case of Auriculas, for it is from the main root near the leaves that the young roots that may be said to build up the renewing plant come first, and repotting in smaller pots, so that the plants may become firmly rooted and well-established as quickly as possible. These should occupy a cool frame in a shady place, or be plunged in a bed of Cocoa-nut fibre or ashes in the open air. The divided pieces can be treated as previously recommended. The plants potted as just described should

have another shift into a larger size in August, that is, into the blooming pots. My main reason for recommending a small shift in the early part of the summer is that it is best to get the plants into root action as soon as possible, and the smaller the pots the quicker is this likely to come about. It is during the summer that the plants acquire the strength which ensures bud and blossom in spring.

In the autumn, whether in the act of potting up from the open ground—in which case the cultivator should be very careful not to over-pot at that season of the year—or shifting from the pots in which the plants have been growing in summer, the pots should be well drained. The plants should be potted firmly in a soil made up of good fibry loam, leaf-mould, thoroughly decomposed manure and sand, and the surface of the soil should be at least $\frac{3}{4}$ in. below the pots. This secures ample space for giving water, as well as some top-dressing in spring.

It is better to winter the plants in a cold frame, where they can be kept moist, cool, and airy, than in an ordinary greenhouse; if the latter be kept at all in a comfortable state of warmth, the plants are apt to become affected with green fly and the foliage to go sickly. They do far better in a cold frame, where they can be protected from very hard frost, until they begin to show their flowers in early spring; and then they can be taken to the greenhouse and hastened on into bloom.

R. D.

MILLA LONGIPES.

THOUGH this new introduction from California cannot vie in beauty of colour with its congeners, which have deservedly become such popular hardy flowers; it is, nevertheless, highly desirable on account



Umbel or Flower-head of *Milla longipes* (one-third natural size).

of the singularly elegant appearance of its large umbels of flowers, as may be seen by the accompanying woodcut. The flowers are about the size of a sixpenny piece, of pearly white inside and heavily marked on the outside with dull red streaks. When seen in quantity in bright sunshine they have a very pretty effect. My first acquaintance with it was about two years ago, when seeds of it were sent to Kew from the Harvard University Gardens. Since then it has flowered in several collections, and was exhibited during the present summer at South Kensington by Mr. Elwes. A frameful of it growing in Messrs. Barr & Sugden's grounds at Tooting, afforded us material for preparing the annexed engraving. It thrives in any light warm soil, and may be easily raised from seed, and connected with this is the fact that it may be thus raised and flowered the succeeding season, an occurrence very unusual with most bulbous plants, except in the case of annual kinds, such as *Bulbine annua*.

W. G

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Linaria alpina.—This is a little gem of a plant, not so well known as it deserves to be. When once introduced into gardens or planted on rockwork, it is certain to hold its own, for plants of it are certain to come up here and there wherever it has been introduced. It is a lovely plant in a pot when well managed; to effect this it should be grown in almost gravel or lime chips, and, being of a slender, diffuse habit, the delicate branches should, when young be well pinched in, and the branches neatly pegged all over the surface of the pot. Treated thus, it is, as has been stated, one of the loveliest plants that can be grown in a pot. Its silvery glaucous foliage, and its conspicuous violet flowers with deep orange throats, at once proclaim it one of the choicest of Alpines.—T. WILLIAMS.

Tritoma Uvaria.—The extraordinarily rapid growth of the flower-stalks of the Tritoma is certainly worth notice. We have some very large clumps of it here, carrying from ten to twenty brilliant orange-scarlet flower-heads, which make a grand display for many weeks. On Sunday the 7th inst. the flower-buds were just showing above the leaves, and on the 14th, they had grown during one week from 3 ft. to 3 ft. 4 in., or at the rate of from 5 in. to 6 in. per day. Last week they made about half this growth, and are now in full flower, the stalks being from 6 ft. to 7 ft. high.—BROCKHURST.

Columbines in the Midland Counties.—Mr. Douglas remarks (p. 264) that *A. glandulosa* does not grow well in the south of England, but does well north of Aberdeen; it succeeds very well at Didsbury, near Manchester; we have a large stock of it here, many of the plants being self sown. *A. chrysantha* and *aurea* have flowered well here this summer, and they remain in bloom much longer than *A. cœrulea*. *A. Skinneri* has been very beautiful, and continued long in flower. We have a good many varieties of a stellate form of flower, which I have not seen noticed in any of the catalogues. One of these we exhibited at the Manchester show in June last. It grows nearly 4 ft. high, and has a beautiful habit, and abundant flowers. The *Aquilegias* are well worth very careful attention, as all of them are beautiful, and I think they are capable of much greater development. The following are the varieties we have growing:—*A. alba plena*, *alpina*, *aurea*, *bicolor*, *chrysantha*, *cœrulea*, *hybrida*, *canadensis*, *californica*, *glandulosa*, *hortensis*, *h. stellaria*, *nigrescens*, *olympica*, *pyrenaica*, *sibirica*, *Skinneri*, *variegata*, *viridiflora*, and *Vervæneana*; just twenty varieties. Seedlings are growing from self-sown seed all over the place, so we ought to have some curious hybrids bye and bye. They are all quite hardy as we did not lose one sort during the severe weather last winter in the open garden.—BROCKHURST.

Yucca Ellacombei.—"B.'s" suggestion (p. 257) that I should send flower-spikes and leaves of this *Yucca* to Mr. Baker, at Kew, is undoubtedly a good one; but unfortunately this must be postponed till next season, as the flowers have all died off. "B." mentions that it has been spoken of as *Y. Ellacombei* var. *tortulosa*. It has, but in error; the specimen sent to THE GARDEN office (p. 216) was indistinctly labelled; it should have been *Y. Ellacombei* syn. *tortulosa*. I have not the pleasure of knowing who "B." may be, but on receipt of his "polite note" I shall be happy to send him a plant of the *Yucca*. With reference to the nomenclature, I shall satisfy myself with calling it *Y. Ellacombei* or *Y. tortulina* until those who are more competent have decided that some other name is the correct one.—ROBERT A. OSBORN, Fulham.

Gold Laced Polyanthus.—I observe that Mr. Douglas favours the growing of these for exhibition in pots large enough to enable the plant to carry several trusses and thus make a larger display of flower, a course different from that acted on by the old northern florists. I have no doubt that Mr. Douglas bases his advice upon the fact that at the last Auricula show at South Kensington, he exhibited such plants, and with them received the highest award given on the occasion. Now I put my own opinion forward with some hesitation, because I am but a novice in this particular branch of floriculture, but I certainly imagined that the flowers on Mr. Douglas's plants showed size and abundance at the expense of refinement, that the blooms were either a little past their best, or had lost quality and had gained size and coarseness. I am aware that in saying this much, I am treading upon dangerous ground, because the plants were adjudicated upon by eminent Polyanthus growers; still it appeared to me that they were placed first not so much because they were so good as because the others shown were so poor. In the preceeding year several of the northern growers staged plants, and nothing shown last spring could at all approach in quality and refinement of colour, and marking their examples of Lancer, Cheshire Favourite, and Exile, grown to show the very highest qualities of each sort with a few blooms only. It is all very well to ask for greater size in the Gold laced Polyanthus, and more flower; these are common demands, but existing kinds can only furnish these

features at the expense of quality. I think amateur cultivators, and specially novices, will do well not to work in that direction too freely, it may lead to considerable disappointment. A Gold laced Polyanthus, however small, is a gem if its colour and markings are perfect. If these are the reverse it is but rubbish, howsoever large the pips may be, and howsoever abundantly produced.—A. D.

—There are a few other sorts of Polyanthus which, I think, may be added with advantage to the list which Mr. Douglas gives (see p. 255). Formosa is a great favourite in the north and flowered exceedingly well with me last year. Pearson's Alexandra is also said to be a very fine sort, but I have never seen it. William IV. is a good variety. Barkas's Bonny Bess is a Tyne-side favourite, which is fairly good. For perfect beauty of form and regularity of lacing I think Cheshire Favourite bears the palm; nothing can be more beautiful than a fine mass of this kind. I should add to Mr. Douglas's recipe for potting, some good leaf mould. That is the natural soil for both Polyanthus and Primroses, and is far before rotten manure, although a little of that also helps. Manure is, however, apt to foster luxuriance of leaf instead of beauty and perfection in the flower. I think that Mr. Douglas's remarks upon removing all the trusses are one may be open to misconception. It is, I believe, the practice to let all the trusses grow on, unless for exhibition; and if for showing, it is then usual to remove all but the number of pips required for exhibition. I always understand that this is done only for fear of the judges, as one could not be sure that they would select the seven best pips, if we exhibited more than the stipulated number. It requires a very large number of plants to choose from if you are to be a successful exhibitor, and if you were bound to show more than six or seven pips of perfect form, it would be difficult indeed.—BROCKHURST.

Calceolaria Golden Gem.—We grow this *Calceolaria* largely; it has been most effective during the whole season and has been quite free from the disease which in some seasons works such havoc with *Calceolarias*. It is dwarf and sturdy in habit and a free and continuous bloomer. We winter our plants of it in cold frames, so that they never get any artificial heat and they are certainly preferable to those drawn up in heated glass houses. We insert the cuttings in October and cover with glass lights, keeping them close until they are rooted, after which they are exposed on all favourable occasions and well covered with litter during frost.—J. GROOM.

Treatment of Alternantheras.—Complaints from all parts seem to be abundant regarding the failure of these; we must therefore consider ourselves fortunate, for here *Alternantheras* have been all that could be desired. Our mode of treating them differs somewhat from that recommended by Mr. Groom (p. 262). At planting out time we take off as many cuttings as we think sufficient for our stock, and put them into boxes, and when put into heat they soon strike. After that, they are removed to a cold frame for the summer, where they require no further attention beyond watering them. About the end of September we place them in warmer quarters for the winter, and in spring we can get thousands of cuttings from them.—J. W. B.

Hemerocallis flava.—I wonder why this truly handsome Day Lily has not been brought to notice as a plant deserving of naturalisation. It is without doubt one of the handsomest hardy herbaceous plants known. Its large clear yellow trumpets, something in the way of *Lilium longiflorum*, render it very conspicuous, and it is deliciously fragrant. It is very hardy, growing anywhere, but it is really an aquatic, growing to perfection in shallow water, and where introduced it may easily be imagined what effect masses of it would have on the margins of ditches, ponds, and such places; even its copious drooping foliage is handsome.—THOS. WILLIAMS.

Pot Marigolds.—Hardy and showy as are the pot Marigolds, they have never been placed in the position of florists' flowers, yet they possess many pleasing features, and the commonest double flower shows that it has form, neat, well-regulated petals, and needs but those in greater redundancy to make a perfect flower. Probably it is a drawback that hitherto there has been found in it, but the one monotonous shade of orange-yellow, but although several other shades have been raised they have never become common. When recently in a farmhouse garden in Kent, I saw a very beautiful double variety, the flowers of which were of good form and well filled, the petals being of a pale lemon hue regularly and perfectly striped on either side with deep orange. That it was a well fixed kind was evident from the fact that every seedling plant that had bloomed produced flowers having these markings. I secured a few plants and some seed, several of the former being about to bloom, and was not a little pleased thus to have found to hand such a markedly improved variety of a plant that I had long admired for its free-flowering and hardy qualities. The variety recently shown by the Messrs. Vilmorin, of Paris, under the name of Meteor, would appear from the published description to be identical with the striped kind that I have. Howsoever it may have originated is of little moment when compared with the

fact that it does exist, and that it is really a most charming plant for the hardy flower garden. The regularity of its markings almost excels those of the very best of French Marigolds.—A. D.

PLATE CXCIX.

PH. EDRA NASSA CHLORACEA.

Drawn by CONSTANCE PIERREFONT.

ALL lovers of easily cultivated greenhouse bulbs will be pleased to note the reintroduction of this beautiful *Amaryllid* by Messrs. E. G. Henderson & Son, of Maida Vale, who exhibited a good specimen of it at the May show of the Royal Botanic Society this year, when it was awarded a first class certificate; it was exhibited as *P. chloracea vera* in order to distinguish it from the many worthless sorts often supplied as *P. chloracea*, most of which do not bear the slightest resemblance to the true variety. It is, I may mention, a very robust growing free flowering plant and one which thrives well in an ordinary greenhouse along with *Ismenes*, &c. A mixture of two-thirds turfy loam and one-third peat with a little sand forms a suitable compost for it, and indeed for most other bulbs of its class, and when once well established it should not be repotted so long as it continues in good health. Treated in this manner the annual production of its showy flowers will be ensured. It was imported from a cool part of the Andes of Peru.

JAMES O'BRIEN.

[According to Mr. Baker in his "New Key to the *Amaryllidaceæ*" there are but two other species, viz., *P. Carmioli* and *P. viridiflora*, both of which are novelties. *P. obtusa* and *P. multiflora* are but forms of *P. chloracea*. Our plate was prepared from specimens supplied from Pine Apple Nursery, Maida Vale.]

GARDENING FOR THE WEEK.

Greenhouse.

Winter Quarters for Plants of Various Kinds.—Plants of all descriptions have this summer made softer growth than usual owing to the much less sun than ordinary to which they have been subjected. Those that have stood in pits where the lights can be taken off in the daytime should be kept under such conditions so long as they are safe from frost, for cool treatment of this description is best calculated to bring about a desirable cessation from growth and to aid in ripening the wood. In the southern parts of the kingdom and on the coast, where frosty nights do not usually occur until later, it is not requisite to take the plants in so soon as in less favoured localities; this, with the appearance of the weather, will point to the necessary time for getting everything where it will be secure for the winter. On fine autumns, where a few loose lights could be placed over them to ward off heavy rains, I have kept Heaths out till October was far advanced and where there is the means of giving them this slight protection they are better out, especially where Heaths have not a house to themselves but have to be accommodated along with other plants that need to be kept a little closer. In getting plants into their winter quarters it is necessary to proceed systematically, placing the different kinds in the positions best suited to them, such subjects for instance, as Azaleas and Epacris with any other hard-wooded greenhouse plants that form their bloom-buds in the autumn and whose shoots are quite or all-but dormant through the winter, although in common with all others of a kindred character, are benefitted by a situation in which they will receive a full volume of light; yet where the entire stock cannot be so accommodated they will do standing under worse conditions in this respect than any plants whose shoots keep on growing slowly throughout the winter, and the flower bud development of which takes place wholly during the winter months. Heaths, with the exception of a few varieties, make no shoot growth in the winter, still it is during this time that almost the whole of the flower formation is going on, and on this account they cannot be kept too near the glass in the best house that can be afforded them. Pelargoniums, though totally different from the last named subjects, making as they do the greater portion of their shoots in the winter and spring, need to be under the full influence of light. Kalosanthes, now not near so much cultivated for general decorative purposes as they deserve to be, although they make comparatively little shoot extension in the winter, yet usually bloom much more profusely when placed where their heads will be within a few inches of the glass from this time until spring. Late-flowering Camellias, and any of the Citrus family will do now for some months with comparatively little light. I particularise these things with a view to its being of some use



PHAEDRANASSA CHLORACEA (HEREERT)

to amateurs and beginners in plant cultivation, who will find it much more convenient and conducive to the well-being of their plants to consider the respective requirements of the different subjects they have to deal with, and thus at the present time put each in the most suitable winter quarters, so that there will be no necessity to again upset the houses by making any alterations in the positions the various plants occupy. In most places, large or small, such a number of plants have to be wintered as makes it necessary to place a portion under less favourable conditions than they would be subjected to, were there alike room to treat all in the most desirable way. Yet much may be done with a mixed collection of plants to bring them successfully through the winter, when the requirements of each are considered; the reverse of this is often observable, when at the time of housing they are crammed in anyhow by mere haphazard. Another matter essentially necessary at the time of getting the plants in, is to see that all are free from insects, such as aphides, thrips, and red spider; for though these will not for some months increase nearly so fast as during the spring and summer, yet affected plants communicate them to others that stand near, on which they remain in a more or less dormant state, ready to increase in vast numbers at the return of the growing season, when the softer condition of the plants makes it much more difficult to deal with them, entailing a correspondingly greater amount of labour.

Double Primulas.—These are not nearly so much grown as the single varieties, which, to some extent, may be accounted for by their much less showy character and liability to damp off unless somewhat differently treated from the single kinds, but where the flowers are needed for cutting, the advantages are very much in favour of the double ones, as they do not drop nearly so quick. Where a little more warmth can be given them all through the winter, little difficulty will be found with them. Nothing answers so well as a small pit or house where they can be kept to themselves, or in company with Cyclamens that are wanted to flower early, kept near the light with a moderate admission of air on fine days and a night temperature of from 45° to 50°; damp will not give much trouble, and the plants will keep on thriving, making double the progress possible in ordinary greenhouse warmth. Such persistent flowerers are they that the smallest examples keep on blooming, but where the plants are not wanted until later on, the flowers should be picked out as soon as formed, which will much accelerate their attaining size. Weak manure water will be found of great use to them.

Lilies.—Many of the late-flowering varieties have been unusually late this season, scarcely having time to mature their leaves properly. As they die down whatever potting or renewal of the surface soil is required, will be much better carried out now than later on, as when they are put in out-of-the-way places where many are compelled to accommodate them, the re-potting and consequent disturbance of the roots get deferred until fibres are being made, when much injury is done. All the kinds that form young bulbs on the lower part of the flower stem that is under the soil, but above the principal bulbs, should be gone over now with a view to remove these, whether the main roots require potting or not, as if the young bulbs are allowed to remain, the pots, in a single season get so crowded that the soil is not capable of sustaining the flowering bulbs in the way they require. Different growers use different descriptions of soil for them. I have found strong loam with a little admixture of leaf-mould, rotten manure, and sand to grow all the strong-growing kinds stouter, and so to enable them to produce a greater number of flowers than peat, and also to induce them to increase faster. The weaker-rooting, less free-growing kinds peat seems to suit best. Attention as to re-potting soon after the tops have decayed is particularly advisable in the case of bulbs that have only this summer made their first growth after being imported. These, especially *L. auratum*, frequently make growth and sometimes even produce a flower or two, at the same time forming little or no roots. Bulbs of this description very seldom live beyond the first season, and they are usually such as have begun to push roots after arriving in this country previous to being potted, and the young tender fibres being injured before or at the time of potting died right back, when through inability in the bulbs to push more roots, there was nothing to support them, the shoot growth they made, generally being the exhaustive and last efforts the plants were able to make. I should advise all who purchase imported Lilies, and this species in particular, to get and immediately pot them as soon as the first importations arrive, as with these, so far as my own experience and observation go, I have seen by far the most satisfactory results. Another matter I would impress upon young cultivators is the absolute necessity for using small pots; even in the case of established plants, that is, those which have been grown in the country some time, it frequently happens that they are over-potted.

Scented-leaved Pelargoniums.—Many of the winter-flowering plants forced or otherwise and required for cutting, are weak in perfume, and it often happens since Orchids are so much used for the

purpose, that a handsome-looking bouquet is all but scentless. This is easily remedied where a sufficient quantity of the sweet-leaved Pelargoniums are grown to meet the requirements of the very different tastes in this matter, from the rose perfumed *P. graveolens*, and the varieties of *P. capitatum* to the ordinary citron and Lemon-scented kinds; these, if well managed, so as to get stout healthy growth in them with ample clean foliage that has never been allowed to get infested with aphides, and if kept under glass early in the season and then turned out in the open air during the latter part of summer, will get their leaves hardened enough to keep fresh in a cut state for some days, but though so easily grown they need sufficient attention to have them in the best condition.

Callas.—Where these are grown on the system of division in the spring, and planting in the open ground with a view to their being potted up in the autumn, they should at once be lifted and placed in the pots in which they are to bloom; these need not be larger than will just admit their roots and a moderate amount of soil without too much cramping, as when they have flowered through the winter and spring they will again be turned out-of-doors as before. They are water-loving plants, and will bear the soil well moistening immediately they are potted; grown in this way their leaves are very stout, and the petioles consequently are much less likely to be broken, and their handsome foliage, when perfect, adds so much to their appearance when in bloom, that it is worth a little extra labour to keep it whole. A single stick to each pot, so as to just support the leaves, will be found sufficient to ensure this. The plants when potted may be placed close in any house or pit available, such as a Vinery, where they can remain till the roots have got established, and after a time be placed in heat to bring them into flower as required.

Greenhouse and Conservatory Climbers, such as flower in the summer, admitting of their being cut in at this season possess an advantage deserving of consideration in making a selection of plants for the purpose, for during the bright summer months where not allowed to cover the roof too closely, they, to some extent, supply the place of ordinary shading to keep the general occupants of the house, when in flower, from being too much exposed to the sun. Those that thus bloom during the summer months, and will bear cutting in more or less yearly, should now have their shoots shortened, an operation necessary to admit as much light as possible to the other occupants of the house through the winter. Amongst them will be found the summer-flowering Bignonias, Hoveas, Hardenbergias, Kennedys, Passifloras, Tacsonias, Plumbago capensis, &c. The beautiful sweet-scented Mandevilla suaveolens, although a plant very subject to red spider, is well worthy of all the attention necessary to keep it clear from this pest, for when it has attained a considerable size, it will continue for many weeks through the autumn, producing a succession of its white trumpet-shaped flowers. Swainsonas, Habrothamnus elegans, Jasminums, Clanthus puniceus, Chorozemas, and Acacias, are also all good. It is not desirable at this season to cut more away than is absolutely necessary, as whatever branches are removed will tend to lessen the quantity of flower they are likely to produce in the spring, but where these have grown too large for the situation they occupy either trained on pillars or on the roof they should be judiciously thinned out; so treated they are much better both in appearance and reality than where an attempt is made to tie them in so close as to make them look stiff and formal. All plants of the above character should, where they require it, now have a thorough clearing from insects, as from their position overhanging other plants they are certain to communicate whatever they may be affected with to the plants standing beneath them. Should any happen to be infested with that worst of all pests, white scale, the most effectual method of dealing with it, is to cut them in so far as to admit of their being taken down from the wires that support them, and have the whole of their heads immersed in liquid insecticide sufficiently strong to kill the insect; the application of any liquid by sponge or brush however effectual it may be for the destruction of this species of scale can scarcely ever be used so as to completely eradicate it, from the difficulty of so getting the dressing to reach every part infested, whereas if dipped overhead the entire surface of the plant is reached. This insect is so hard to kill that even when the plants are close cut in, so as to leave nothing but the hard wood, it often takes several applications before all are destroyed. Now when growth has ceased by beginning early and repeating the dressing through the winter, affected plants may be cleaned.

T. BAINES.

Flower Garden.

Auriculas.—"Delta" states (p. 255) that the Auricula aphid is very destructive to his plants, and recommends watering the soil in the pots with paraffin as a cure for it. I hope that Auricula growers will not follow his advice. Paraffin is a dangerous substance, and I am much surprised that it should be recommended so much as it has been by practical gardeners. If the woolly aphid were to appear on any of our plants, I would turn them out of their pots and wash the

roots well with soapy water. Then, when they had been permitted to dry for half an hour, I would wash again with clean rain-water. "Delta" seems to think that even if his plants were clean they could not be kept so, because the pest would attack them again, transmitted from the roots of Sow Thistles. It is certain that any one who grows Sow Thistles in his garden is not at all likely to be very successful with choice Alpines. Our plants are now looking remarkably green and healthy, and most of them are well exposed in the frames in an open piece of ground; the lights are left off night and day, but still the plants show autumn trusses. We are not alone in this, as a celebrated grower near Manchester writes to say that his plants are quite as erratic in this respect as ours are. He suggests placing them quite out in the open air all through the summer months—a practice with which I quite agree, but it is necessary always to keep them in the frames, so that the glass lights can be placed over them in rainy weather.

Carnations and Picotees.—Arrangements must now be made to remove all layers and pot them either singly in 3-in. pots or a pair of plants in pots of a larger size. The compost that seems to answer best is four parts good sweet maiden loam, one part leaf-mould, and one part sharp sand. We were very late in getting the Carnations layered this year, but the plants so far are looking quite as well as we ever had them. The leaves are deep green and healthy, not a spot of disease being visible anywhere. When the plants are potted, place them at once in a cold frame, water with a fine-rosed watering pot, and then place the lights over them, keeping them rather close and shaded for a week until they have formed fresh roots.

Dahlias.—Those who were desponding a few weeks ago about the quality of the Dahlia bloom may now have had reason to change their mind. The plants are healthy and producing well-formed flowers in abundance. The nights are much warmer than they were two or three weeks ago, and the days are fine. The blooms should still be thinned out, and the stems should be tied to the sticks as they advance in growth, as the plants are very heavy and easily injured by winds. Shade the flowers, especially the light-coloured and pink ones, and see that the ground is kept stirred with the hoe.

Gladioli.—We are now getting some good spikes of these. It is, however, too late to fertilise the blossoms for seed saving, as the seeds would not have time to ripen. The ground between the rows should be well stirred with a hoe, or if it is wet, the surface may be lightly forked over, in order that there may be a good opportunity for the bulbs to ripen. It is not likely that they can ripen well when the soil is, as I have often seen it, trodden hard between the rows, the surface quite wet and in places covered with a growth of green *Convolv.*

Pinks.—If pipings of these have done well, now is the right time to prepare a bed in which to plant them. When a Pink is lifted out of the ground it does not seem as if the roots run far from the main stem, but they do. They run well into the ground, and it is best to trench the beds 2 ft. deep, working into them some good rotted stable manure, some of it at the bottom of the trench, and some of it 6 in. under the surface.

Tulips.—If the ground intended for these has been cleared from other plants the beds may be prepared at once if time can be spared for that purpose. Growers who make a speciality of them take infinite pains to prepare the beds well, excavating the soil to a considerable depth, and then filling the space with good loam mixed with rotten manure. Those who cannot afford this would do well to trench the ground to a considerable depth and manure it well; then at planting time they should place about 6 in. of rotten, chopped-up turfy loam on the surface, and in that plant the bulbs with a little sand under and over them.

J. DOUGLAS.

Extracts from my Diary.—September 23 to October 1.

VEGETABLES.—Planting out large quantities of Daniel's Defiance and Cocoa-nut Cabbages for spring use. Hoeing ground between crops of Endive and winter Lettuce. Tying and training Cucumbers. Manuring a south border, and preparing it for trenching. Cutting all self-protecting Broccoli fit for use. Sowing Osborn's forcing French Beans. Earthing up Celery when the weather is dry. Tying, stopping, and training winter Cucumbers. Sorting Potatoes, and picking out diseased tubers. Digging ground on which has been Gherkins, and manuring it for Cauliflowers. Thinning out Lettuces sown on borders, leaving some for hearting. Cutting all self-protecting Broccoli and ripe Tomatoes. Trenching border for Cauliflowers. Tying and stopping Tomatoes growing in Pine stove.

FRUIT.—Gathering Dutch Codlin, Wyken Pippin, Scarlet Nonpareil, Dumelow's Seedling, and Bess Pool Apples. Cutting out laterals and surplus wood from Hamburgh Vines to admit light to ripen the wood. Gathering Beurré Diel, Vicar of Winkfield, Duchesse

d'Angoulême, and Gansel's Bergamot Pears. Also Louise Bonne of Jersey and Passe Colmar Pears. Weeding between Strawberries.

FLOWERS.—Getting Chrysanthemums, Carnations, and Mignonette into cold houses. Getting soft-wooded Heaths, Camellias, Azaleas, and Eupatoriums into cold houses from outside. Potting Hyacinths, Crocuses, Tulips, and Snowdrops. Staking out Eupatorium odoratum. Potting old plants of Vesta, Happy thought, Stag's Horn, Crystal Palace Gem, and Hieover Pelargoniums; also *Iris reticulata*. Potting clumps of *Spiræa japonica* for forcing.

PROPAGATING.

RAISING FERNS FROM SPORES.

THE method of propagating Ferns from spores is now so generally known that simple details of the mode of procedure are all but unnecessary. Only a comparatively few years back the cultivation of these plants was far less general than it now is, and by many they were supposed to be difficult to grow, yet such is by no means the case, for if their wants are attended to, they are in reality amongst the easiest to manage of all plants cultivated under glass. It is well known that many species reproduce themselves almost like weeds, coming up by thousands on any moisture-holding material the spores may happen to fall upon, which remains undisturbed long enough for them to vegetate. With these there is no difficulty, as such as are required can be taken up and potted when large enough; but there are large numbers of the most highly-prized Ferns that very rarely increase in this way at all, some defying the attempts of those who undertake their propagation by sowing the spores. For instance, amongst the *Platycterium* *P. grande* and *P. Stemmaria* remain scarce and high-priced, from the fact that not many succeed in raising them, whilst a few manage to so increase them by hundreds. Why there should be so great a difference in this matter relating to the different species of Ferns, a difference much more marked than in most other families of cultivated plants, is a problem I have never been able to solve, nor met with any one who could do more than conjecture the cause; but so it is; if you prepare a seed bed around and beneath where many of these more-difficult-to-raise species are placed, and on which the falling spores cannot fail to alight, it rarely happens that any success attends the operation, even when the prepared medium is treated as to moisture and other essentials, just as it would be if the spores had been gathered and sown. This I have repeatedly proved when the utmost care was taken that no water reached the surface of the seed bed that could wash the small germs too deep down in the soil for them to vegetate.

In addition to the species of *Platycterium* I have named, there are many other Ferns that are equally little disposed to increase from spores that have been allowed to fall from the plants of their own accord; amongst these may be named all the species of the much-prized *Gleichenias*, the dwarf tree species, *Brainea insignis*, *Lomaria cycadiaefolia*, *L. zamiaefolia*, most of the *Davallias*, several of the *Nothoclenas* and *Cheilanthes*, particularly the handsome *C. dealbata* (by some better known as *Cassebeera farinosa*), *Angiopteris*, some *Lygodiums*, and other low-growing species and of the larger Tree Ferns, most of the *Alsophilas*, *Cibotiums*, and *Cyatheas*; whilst in the *Dicksonias*, many come so freely that even the base of the stems frequently get studded with young, self-sown seedlings. It needs some experience to detect the right time for gathering the spores with a view to sowing them, and where failure follows it almost always happens that the securing of the spores has been delayed too long, when the seed germs have in reality fallen, and nothing remains but the brown covering or seed vessels. The spores, I may say, of most Ferns are so small as to be scarcely detectible by the naked eye. It is well known amongst Fern raisers that the spores when gathered at the right time will retain their vitality for years, but, like the seeds of most plants, they keep best when not shaken out, that is, when the fronds that have produced them are gathered and dried with the spores attached. The young fertile fronds in the early stages of their development, show the sori—that is, the patch-like cases of fructification that contain the spores, which cases, when the spores are matured, burst and allow the fine dust-like bodies to fall out. It is just when the commencement of this ripening process has been arrived at that the spores should be secured. In the strong-growing species the right condition may be detected with the naked eye; in the case of the weak growers with very small sori, as soon as ever the coverings show that they are beginning to burst, there should be no further delay in gathering. They may be scraped off with a knife on to a sheet of paper, the best way with such kinds as *Platycterium grande*; in the case of species that admit of the fronds or a portion of them being taken off altogether this can be done, and they may be either sown at once or dried gently and then sown. I have

never found much difference in the result whichever course was followed; when dried the fronds can be rubbed in pieces between the hands: if just taken off the plants, they should be chopped into small bits with a pair of scissors and scattered on the surface of the soil in the pots or pans prepared for sowing.

From the necessity of keeping the material on which the spores are dispersed moist, almost up to saturation, it is requisite that it should be of a very open porous character, otherwise it gets covered with green mould before the young seedlings are large enough to remove, and endangers their being smothered. Nothing that I have found is better than ordinary peat broken tolerably fine with some sand and about one-fourth of sandstone broken into bits about the size of Broad Beans mixed with it, giving the surface a good watering first, and pressing it firm, so as to close up all the inequalities, which will prevent the spores getting too deep down in the soil to allow them to vegetate. For the same reason it is well to avoid applying water on the surface, instead of which the pots should be placed in saucers containing a little water, which will be soaked up and keep the material quite wet. The broken up fronds containing the spores should be pressed down close to the soil. Some growers put sheets of glass over the tops of the pots until the young plants make their appearance; but when these are used, I have sometimes found the soil get affected with green mould. Nothing further is needed, except to prick off the seedlings into pots of prepared soil as soon as they are large enough, and later on, when sufficiently grown to put them into small pots singly; but on no account over-pot them.

T. BAINES.

LEUCOPOGON CUNNINGHAMI.

THIS beautiful greenhouse shrub is best increased by means of cuttings put in in the months of May and June. After it has done flowering, cut off the old flower shoots, and place them in a moist growing atmosphere about 60°, when several growths will begin to start; take these off as shown in the annexed illustration, prepare



Cutting of *Leucopogon Cunninghami*.

well drained 6-in. pots by filling them with finely sifted soil, composed of peat, loam, and sand in equal parts, to within a $\frac{1}{4}$ in. of the rim; press this compost down rather firmly. Then put sand on the top, sprinkle with water, and insert the cuttings firmly. Place a bell-glass over them to exclude air, and take care to wipe the glass dry every other morning. Set them on a cool bottom in the propagating house for two or three weeks till they begin to callus, when they may be placed on a slight bottom heat, and they will emit roots in about two months. Give air gradually by tilting the glasses, and they will be ready for potting off and placing on a shelf in a warm greenhouse about the middle of September.

H. H.

Propagation of Lapagerias.—When plants are described as having so many shoots, and their habit of growth is to produce their shoots from underground, as Lapagerias do, people naturally imagine that those who describe them expect to be literally understood. The explanation of "J. S. W." (p. 263) now shows what he means by shoots of the Lapagerias of which he spoke, and simply reduces them to what is usually met with, and if "J. S. W." happens to be in this neighbourhood I can show him plenty. Instead of counting each little side shoot as "J. S. W." now admits he does, most people would call the whole of what each growth from the bottom is composed,

one branched shoot. I have grown these plants long enough myself, and have seen sufficient of what the largest and most successful growers in the kingdom have been able to accomplish to be able to judge pretty correctly what can be done with them; and this further explanation given by "J. S. W." proves clearly that in discrediting the age and size of the plants, as first stated, I was correct. But this is of less importance than the propagation of Lapagerias, which most people would be glad to increase as fast as they do Vines or other easily-struck plants, and when "J. S. W." wrote about striking them from eyes as readily as Vines, I was in hopes that he had hit upon some quick method of which he would give further details that would enable others to do likewise, but this he has not done.—T. BAINES.

Marechal Niel.—Recent experience leads me to conclude that summer is the best season for propagating this Rose by means of cuttings. These, if taken from the blooming wood in spring after the flowers have been gathered and put in under a handlight and kept shaded, or indeed anywhere where they can be kept moist and protected from the sun, will strike freely. In this way eighteen out of every twenty will root. If this plan were generally adopted, Marechal Niel might soon become as abundant as the commonest Rose in cultivation. The cuttings should not have more than two buds above ground.—A. D.

Autumn-struck Fuchsias.—It is not yet too late to propagate any of the varieties of Fuchsia which it may be desirable to increase for next season's display. If potted off into small pots before winter sets in, and kept growing gently in a light airy position and intermediate temperature, they will be healthy little bushes early in spring, fit for potting and growing on quickly if specimens are desired, or for flowering in a small state in medium-sized pots for the decoration of the conservatory, or for general indoor decoration. Any not required for early flowering will do well during the summer months, set out-of-doors in a sheltered position, and kept well supplied with water and weak liquid manure; all blooms should be picked off them closely until within a month of the time when they are required in flower, when they will make a fine autumnal display. Fuchsias possess such a graceful habit of growth, that the less training they get the better; one central stake to support the leader, and pinching any shoot that may be outgrowing its neighbours, are all that is needed, and whether as border plants, single specimens on turf, or as pillar plants or in pots under glass, they are subjects that always well repay any attention that may be bestowed on them.—J. G.

TREES, SHRUBS, AND WOODLANDS.

PLANTING FOREST TREES.

(Continued from p. 259.)

WHERE pitting is the mode of preparation adopted upon clay lands, the longer the interval between the hole digging and the planting the better for the trees. Sufficient time should, in all cases, be given for the chopped turf or surface slice to decay after being placed in the bottom of the pit, as it thus becomes available at once as food for the young plants, and during the process of planting the pulverised soil will insinuate itself under and around the roots. The holes also should be sufficiently large to allow of several inches of the fine soil surrounding the roots on all sides, otherwise many of the plants will languish and perhaps die off at the end of the first or second years for want of proper treatment. The marked superiority of growth which is observable in trees planted upon made ground, where every particle has been moved, and that to a considerable depth, should convince every tree planter of the great advantages of cultivation, and a thorough comminution of the particles of the soil. And here, a word may be said against the very common practice of stamping into the holes a mass of wet clay, thus forcing all the roots to the bottom, and both covering them and surrounding them with a substance quite impenetrable to the rootlets.

The practices of planting indiscriminately all kinds of forest trees and distributing them throughout the plantations with the regularity of the patterns upon a wall paper, are at once opposed to science and to correct taste. Few foresters can boast of soils adapted to the growth of any great number of species in the same enclosure, and the recurrence of the same forms and tints in spring, summer, and autumn at regular intervals throughout the woodlands, entirely destroys the spirit of planting. It may often be advisable to mix up the deep and shallow-rooting trees, so that the soil may be well occupied from its surface downwards. Besides, some of those trees whose roots penetrate the deepest bring up to the surface and scatter over the land by their fall of leaves, substances beneficial to other trees whose roots do not descend deep enough to reach them. These substances have also a beneficial effect upon the herbage which

springs up after the land is either partially or entirely cleared of timber. Though little or nothing will grow under the shade of a dense Ash, yet after the clearance of the timber the land is undoubtedly improved, and where a crop of Oaks has been matured, the land is found to be considerably benefited by the saline matter obtained from their leaves, which amounts to about 5 per cent. of their whole weight. After a plantation of Larch has been thinned out sufficiently to allow Grass to cover the ground, such herbage far surpasses both in quantity and quality what the land previously produced.

In plantations intended mainly for profit, grouping according to soil and situation will be found the surest method. It is often asserted that the finest Oak, Ash, Elm, and Beech are to be seen as single specimens in the midst of, or upon the margins of, other plantations. But wherever such an instance occurs the particular tree is generally upon its own soil, and is found to be flourishing at the expense of all around it. An Oak in a deep loamy soil resting upon clay; an Ash or an Elm in a loamy gravel; a Beech upon a calcareous gravel resting upon a bed of chalk; a Scotch Pine at a considerable elevation, and in a gravelly soil which affords it complete drainage; a Horse Chestnut in a deep loam, with a dry bottom, a Mountain Ash in a high situation where it meets with light sandy land; a Birch in a light black loam with a gravelly substratum; and a Spanish Chestnut in a dry loamy soil upon gravel, afford at once the finest specimen trees and the most serviceable timber.

As most large areas of land selected for planting will comprise many varieties of soil and different aspects, it will generally be found advisable to group accordingly. The deeper soils will suit the Oak, Elm, Ash, Walnut, and Chestnuts; the sands and gravels the Larch, Sycamore, Beech, and the Hornbeam and Spanish Chestnut for underwood; the boggy and wet lands the Willow, Alder, and Poplar; and the moist lands the American Plane, the Ash, Lime, and Birch; while the very thin soils will carry the Scotch Pine, the Silver and Spruce Firs, and the Mountain Ash.

Though cultivation proves highly beneficial to young trees by placing within their reach all the available food contained in the soil, and also by actually increasing the amount of such food, too much manuring will often force growth beyond what is advisable for the texture of the wood. It is not the fastest-growing tree that furnishes the best timber, else the Oak of the park would be preferred to that of the forest, and the Larch of the valley to that grown upon the hillside. Cultivation in conjunction with manuring should be practised only upon such trees as are planted in worse than their natural soils. Enough of early cultivation to impart constitution should be bestowed upon all young trees.

The use of nurses in plantations is a subject deserving notice. How seldom do we find these planted sufficiently thick or of adequate strength to give the necessary shelter to the main crop. The extent to which they should be used must depend upon the exposure. Where this is great, they may be filled in to within from 30 in. to 36 in. of the standards and of each other. Upon more sheltered sites they may be from 4 ft. to 6 ft. apart; and when thinned out, they will have attained useful sizes. The Mountain Ash is second only to the Larch for use in bleak situations; and the Spruce will afford a better shelter upon a less space than the Scotch Pine. The Sycamore, Norway Maple, Pinaster, and the Elder are very serviceable near the sea.

The forester who has access to a well stocked home nursery, ought to be able to ensure a certain amount of success in his work, as he can raise his plants when they are required, and replant them in the best possible condition. By dividing his hands into raisers, sorters, carriers, and planters he may get over in a systematic way a large amount of work in a short time. Wherever the trees have to be carried considerable distances, and to remain out of the ground more than a few hours, it is a good practice to puddle the roots by dipping the bundles into a tub containing earth and water mixed to the proper consistency. All root-pruning should at this time be avoided, beyond cutting off the extremities of such as are injured in the getting up. Nor should the pruning of side branches be now attempted, except so far as it may be necessary to foreshorten straggling growths, or to reduce such heads as are quite disproportioned to the strength of the roots. The wounds caused by close side pruning at the time of transplanting are slow in healing over, on account of the deficient circulation of the sap during the first season. For this reason the trees intended for removal should be pruned in the nursery any time about June or July.

Though the early autumn is strongly recommended as the best time to ensure success, where the operations are large, the work may have to be carried on during all the available weather between the early part of October and the end of April or the beginning of May. Indeed there are few weeks in the whole year when transplanting of some kind may not be taken in hand. Frosty weather

should be avoided; but when hard pushed the planter may otherwise work throughout the winter, especially if he selects his land with an open bottom for the early autumn and the wetter parts of the winter, reserving cold bottomed and heavy retentive lands for the spring. Very wet lands should never be planted late in the winter, unless in exceptionally dry weather, and when they have received a good previous preparation.

The length of time which it takes to rectify mistakes in planting should make the forester doubly careful to ascertain by observation and analysis the capabilities of the land he selects for plantations, as it sometimes takes years to discover and the work of a lifetime to rectify what has been done amiss, and free-growing and flourishing trees even of an inferior kind are far preferable to stunted specimens of the choicest sorts.

A. J. BURROWS.

The Araucaria imbricata in South Germany.—

When recently visiting the to me interesting garden of a distinguished collector of new and rare plants and shrubs in the neighbourhood of Baden-Baden, I was shown with great pride by the proprietor a small but fairly healthy specimen of the above-named well-known Conifer (which in this country is, I believe, perfectly hardy), and informed, to my great surprise, that it was, he believed, the only living specimen of the tree in South Germany. He attributed the fact of its having resisted and survived the winter frosts to the peculiar position in which he had planted it, at the bottom of a kind of deep glen or ravine, where the hill rising steeply immediately on the other side completely sheltering it from the morning sun, which, after severe frosts, had proved fatal to all those exposed to its rays.—W. E. G.

Yellow Fruited Guelder Rose.—Having for many years grown this fine hardy shrub in the south of Ireland without ever succeeding in getting it either to flower, or produce its highly ornamental bunches of bright coloured berries, I availed myself of a visit to the unrivalled collection of my friend, M. A. Lavallée, at Segrez, on Monday last, in order to see this shrub, which was then in full and copious fruit in one of his shrubberies; and on his pointing it out to me I was much surprised to see the berries of a most brilliant scarlet colour, instead of yellow as I expected them to be. M. Lavallée, however, informed me that the first colour they assume in the early autumn is bright golden yellow, which, as the season advances, changes to scarlet, and ends by becoming black as ink before the berries fall off the bush. The birds usually so fond of berries do not seem to touch these at all.—W. E. G.

Catalpa syriaca.—This beautiful flowering tree forms at present a conspicuous object in pleasure grounds, being quite covered with flowers that are spotted like those of a Foxglove. Catalpas evidently like full exposure to sunshine and air, as I find that those on the sunny slopes of our hills are much more floriferous than trees in shaded positions. The young wood like that of the Paulownia, which the Catalpa somewhat resembles in habit and style of growth, is soft and liable to injury from severe frosts when in an unripened state, but when fully mature it withstands a considerable amount of frost, and in order to ensure that condition it should be planted on well drained soil, and not grown over luxuriantly. The Paulownia with its singular purple flower spikes was most effective here in spring, and now the Catalpa is even more interesting, owing to the dearth of flowering trees which there is late in summer.—J. GROOM, *Linton*.

Pinus insignis as a Sea-shore Tree.—The great merit of this as a sea-shore tree is well shown at Bodorgan, in Anglesea, where many specimens are in perfect health within a few yards of the sea. There is perhaps nowhere a more wind-tortured district than Anglesea, judging by the appearance of the few stunted native trees that withstand the blast. Planting of the most beautiful kind is, however, established almost on the sea-shore. On the margin of the shore the Sea Buckthorn, Furze, and Darwin's Barberry first meet the south-western gales and almost continual winds. A few paces within these the first plants of *Pinus insignis* and the common evergreen Oak appear, and soon, with the aid of these excellent shore trees, almost any kind of evergreen planting may be carried out. The whole place is most instructive as regards planting near the sea. The contrast between the wind-swept surface of the island and the noble avenue of evergreen trees leading from the entrance lodge to the house is very striking.—V.

Rhus Cotinus.—This Sumach is just now an object of great beauty in the ornamental grounds at Castle Ashby, Northamptonshire. It is doubtless a very old plant which in course of time has grown into a large bush and made a quantity of hard wood. During August it flowered and has since been succeeded by the long feathery flower stalks which, being produced in large pinnacles, have a very charming effect. It is said that in Italy this plant was used for tanning purposes.—R. D.

THE TASMANIAN TEA TREE.

(LEPTOSPERMUM LANIGERUM.)

THIS is a very valuable New Holland species, which has of late years been rarely grown and distributed, except by Messrs. McLelland, of Newry, who are tolerably well known as keeping up a stock of rarities in the way of hardy plants "not generally known." In habit of growth this plant closely resembles some *Cotoneasters*; the leaves are, however, almost silvery in colour, being densely clothed with soft, silky hairs; the young wood is of a pink colour, and the large pure white, *Saxifraga-Burseriana*-like flowers are produced in the axils of the last year's lateral branchlets. Our sketch merely represents a tiny spray from a branch 15 in. long, which was a Hawthorn-like mass of flowers and leaves. My predecessor here had noted its merit, and a small specimen endured the late severe winter with impunity side by side with *Billardiera longiflora*, *Berberidopsis corallina*, which is now lovely with glossy green leaves and drooping coral-red buds and flowers; *Commelina celestis*, *Benthamia fragifera*, *Oxalids*, and the small *Fuchsia gracilis*. The last-named *Fuchsia* is a lovely plant, never growing above 9 in. or 10 in. in height, and so forming bushes 12 in. or 15 in. in diameter, each slender shoot bearing numerous red and purple flowers and bright coral red buds. My good friend Mr. Hemsley sends me word that it is a "starved form of *F. Riccartoni*," which, indeed, botanically it possibly may be; all I can say is that



Spray of the Tasmanian Tea Tree.

growing in a similar situation on rockwork a few yards away is the true *F. Riccartoni*, 4 ft. or 5 ft. high, with much larger foliage and flowers, which look thin and poor in comparison with those of the dwarf *F. gracilis*. I shall some day send good specimens of both to Mr. Hemsley, who is our best English authority on the genus, and shall then be quite content to abide by his decision. Species or variety, however, matters but little, since all garden-loving amateurs will be glad to possess a form of *F. Riccartoni*, which blooms freely at 9 in. high in compact bush form. How contemptuously the Knight of Kerry would look down on my poor little pet after contemplating his "specimen" of *F. Riccartoni*, which is nearly big enough to fill the temperate house at Kew. To return to the *Leptospermum*, I may mention that small plants in 4½-in. pots are 15 in. to 18 in. in height, and one such for which I paid eighteen pence has just now numerous sprays of its milk-white flowers. For a cold greenhouse in pots, or as a wall shrub in a sheltered position, this distinct Pittosporaceous shrub should be made most welcome.

B.

***Pavia macrostachya*.**—This at present forms a fine feature in the ornamental grounds at Castle Ashby. It is 14 ft. or so in height, over 30 ft. through, and one mass of blossom down to the very ground. The blossoms are arranged in tall spikes; they have long projecting stamens, and they are also fragrant. The leaves are produced on long petioles, occasionally flattened out in a peculiar manner. This species is also known as the Edible Buckeye (*Pavia edulis*) in America, on account of the fruit being eaten either boiled or roasted. It is a very fine deciduous tree, and one that should be planted much more frequently than it appears to be. *Pavia parviflora* and *P. spicata* are said to be identical with the foregoing.—R. D.

***Hypericum oblongifolium*.**—I noticed this handsome large-flowering kind, with polished golden buds, in bloom at Glasnevin. It is, no doubt, obtainable in the London nurseries, and deserves to be generally planted as a valuable autumn-flowering shrub.—V.

FORMING AND PLANTING SHRUBBERIES.

IN selecting a site for a house and grounds, where the choice is not limited, there is often a want of judgment and taste displayed in seizing upon and utilising to the utmost any special local features or conformation of ground which may be easily beautified and made pleasant for the eye to rest upon. A group of old Oaks or Elms gives an air of age and grandeur to any place; that is, if the house has anything in keeping with it. A small watercourse meandering through a meadow may be opened out into a miniature lake, or at a less expense be converted into a winding stream garnished with Water Lilies and numerous other interesting aquatic plants. It is not necessary or desirable that each place should include everything; on the contrary, it is better to elaborate and work out that special feature which seems natural to it. An elevated site should be selected, if possible, for the purpose of securing an efficient and easily arranged system of drainage, and it permits also of a bolder and more picturesque arrangement of the various groups and belts of trees and shrubs that are necessary for shelter and privacy. All trees of large growth should be planted at a sufficient distance from the house, so as not to obstruct air and light. Even stables and offices, which it may be necessary to shut out with trees or masses of shrubs, should not have anything likely to grow tall planted too near. The falling leaves often block up water-spouts and gutters, and in some unlucky moment, from some trifling oversight, the place may be flooded. Buildings that are exposed to the drip and damp of overhanging trees are far more perishable, and cost more for repairs, than if exposed to the drying influence of air currents. A house or building embowered in trees is a delightful retreat in very hot weather; but it is usually damp in our climate, and generally unhealthy. It does not follow from this that any building, or portion of a building, may not be effectually blinded or hid, if it be desired, without incurring the unpleasant consequences of finding at some future day that the trees employed were unsuitable and must be removed, and the work done over again; and, to avoid all danger of this, the planter should make himself acquainted with the life-history, so to speak, of the numerous families of plants that are available for outdoor decoration. It is impossible for anyone to arrange or group plants or trees properly about whose origin or antecedents he knows little or nothing.

In planting merely for shelter, common, hardy, fast-growing things may be employed. I have seen the Huntingdon Elm used in very exposed places, to receive the first fierce blast of the wind, with good effect; and it grows rapidly, and has a less stiff and more elegant appearance than the common Elm or Oak. Having established a first line as a sort of outwork against the enemy, better and choicer trees and shrubs may be introduced. There are, of course, places where these observations on the importance of shelter are unnecessary. The greatest amount of shelter will commonly be required on the north and east aspect, though there are localities where the west winds at times come with the force of a hurricane. They are usually not so cold and cutting as those from the east or north; still, it is necessary to provide shelter in some situations against their destructive force. In the arrangement of the groups of trees and shrubs many things have to be thought of before the plan is laid down. The means of the proprietor will in the main decide the question as to the quality of the materials employed. The outside furniture of a residence is just as much a matter of expense as the furniture for the interior; and it reflects in the same way the proprietor's tastes and means. And as planting, either for shelter or general effect, may be looked upon as a permanent work, it is a great pity to do it imperfectly, either by deficient preparation of the sites, or by planting cheap and inferior subjects. If the work be well done, and a good selection suitable for each position made, it will annually become more valuable and interesting. One of the evils to be avoided is thick planting; many shrubberies are utterly ruined by that, and subsequent neglect. Thick planting would do no harm if thinning were attended to in good time; but even then I question the advantage of planting many masses, except it be on the windward side. Besides, buying more plants than are really necessary adds to the cost of the work. Many annual plants of vigorous growth might be used to furnish thin places in newly planted shrubberies for a few years till the permanent plants were established and beginning to cover the ground; for this purpose Castor-oil plants, giant hemp, and other similar plants, may be used in the middle of the groups, with dwarf annuals towards the outside.

In setting out positions for belts or groups of trees and shrubs in bleak, exposed situations, where the soil is bad or inferior after the positions are marked out, and trenched soil should, if possible, be carted from other positions and placed on the top to deepen its staple; it will elevate the site and give the planter an earlier opportunity of seeing and assisting the development of his ideas than would be possible if planted on the level. The idea of planting on slightly elevated sites may perhaps be cavilled at and deprecated; but the extra

depth of soil obtained, and the freer drainage which is secured, add so much to the warmth of the soil, that many rare plants may be planted with a reasonable prospect of their succeeding, even in otherwise impossible situations, and which it would be almost hopeless to think of planting unless some such plan be adopted. Every experienced planter knows that a plant about whose hardiness there may be any doubt often succeeds on a raised site, when others in a lower situation fail. But I do not believe in raising the site at the expense of depth of soil. The elevated surface should be so much added to its depth—not, as I have sometimes known to be done, raising the surface by filling up underneath with stones, or clay, or rubbish. I am inclined to think, from what I have seen, that much mischief has been done by planting what ought to be permanent subjects on mounds of stones; in dry seasons the plants actually perished for want of water. Trees planted on a heap of stones are in a worse position than if growing in a thin stratum of soil on the natural rock, so far as regards moisture. It may savour somewhat of empiricism to attempt to lay down rules or to give hints about a matter requiring a special study of all the connecting circumstance, many of which would be altogether of a local nature. These should, and must be thought out on the spot; but when the ideas have been matured, and the plan arranged, if the designer takes hold of one end of an ordinary waggon rope, steps out boldly with the rope trailing behind him, with a couple of men each provided with an armful of pointed stumps to stick in the ground, at short intervals, by the side of the rope as it glides along, it will be found that a bolder, freer, better outline has been obtained in a few minutes than perhaps would or could be secured by trusting to the eye or by measurement. I have seen both plans tried, and the rope plan is by far the best, always supposing the person drawing the rope possesses a good eye, and has the design well arranged in his head. In making alterations involving earth-moving—which most improvements do—there should be no difficulty in arranging for the improvement and deepening of the soil where the better and choicer kinds of trees and shrubs are intended to be planted. The next two or three months is the best time for making alterations or improvements involving new groundwork, as well as for planting all kinds of trees and shrubs. I hope, in a future paper, to say something about the selection of trees and shrubs and their planting.

E. HOBDAY.

THE KITCHEN GARDEN.

ASPARAGUS CULTURE.

(Continued from p. 250.)

Growing Early Asparagus in the Open Ground.—

Asparagus may be brought to perfection fifteen or twenty days before the usual time by adopting the following system: A border is prepared along a wall having a southern aspect and a sheltered position. A trench is dug all along the length of the wall to the depth of 14 in., and filled up with a mixture of two-thirds of well rotted stable manure and one-third of the soil taken out of the trench. The compost having been thoroughly incorporated, about 6½ in. to 7¼ in. in depth of the earth on the near side of the trench is thrown up to form a mound sloping to the south against the wall, so as to have the soil near the wall some 7 in. to 8 in. above the level, and that near the pathway 6 in. or 7 in. below it. The mound being thus prepared we plant our stools of Asparagus at a distance of about 13 in. from each other, and at about 2½ in. from the wall. The second row is likewise planted at a distance so as to have four rows of plants on a mound of 3 ft. in width. The stools being planted, they are covered up with well rotted stable manure to the depth of about 7 in., so that the mound commences at the level of the pathway, rising gradually until it reaches the height of 16 in. above the level at the spot where it joins the wall. For such a plantation we ought to use the early pink Argenteuil variety of the best quality if we wish to obtain good results. Any other variety will produce nothing but unsatisfactory crops both as to quantity, quality, and duration. This plantation must have the same attention paid to it as the others already described, in addition to which it must be watered during the summer of the first year if it is a very dry one. At the end of three years we may begin to gather in the crop. For

this purpose the border is covered in the month of February with some good dry stable litter. If fine weather sets in early, especially if it is sunny, the litter should be cleared away and restored once more to its place as soon as the evening approaches and the temperature becomes lower. As long as the weather remains cold, the border must be kept well covered with the litter. As soon as the Asparagus heads begin to show aboveground, the litter must be taken away entirely for fear it should communicate a bad taste to the Asparagus, and be replaced by straw mats, which are taken away on fine days, and replaced as soon as the evening sets in. Asparagus plants grown in this fashion yields a crop from a fortnight to three weeks earlier than they otherwise would; we must therefore stop gathering them at least three weeks earlier than in the case of Asparagus grown in the usual manner.

Forcing Asparagus.—In order to force Asparagus to produce a crop early enough to be quite out of season, it may be grown either in the open ground or in heat. If for ordinary cultivation we ought to select the best varieties to be obtained, we ought to be still more careful in choosing our plants when we are going to force them. The strongest and healthiest-looking plants should be chosen for this purpose.

Forcing in the Open Ground.—Beds are prepared in the ordinary way of 3¼ ft. in width with a distance between them of from 2 ft. 2 in. to 2 ft. 4 in., the stools being planted about 1 ft. 1 in. apart in every direction, so that there are three longitudinal rows of plants in each bed, the outer rows being about 6½ in. from the edge of the bed. The same care is bestowed on these plantations as on others, and when the third winter comes, we may begin to force the Asparagus planted in this manner. For this purpose, towards the end of October or the beginning of November, we dig out the soil forming the pathways between the beds to the depth of about 1 ft. 8 in., the trench itself being about 2 ft. 4 in. in width. In digging out these trenches we throw out sufficient soil to cover the stools to the depth of about 1 ft., in order that the forced heads may be of a good length, and may remain white. This done, we fill up the trenches with good fresh stable manure, beating it down evenly, after which we cover the beds with as many frames, with their accompanying lights, as they will hold to keep up the heat of the beds. The frames should be about 6 in. or 7 in. apart. If we place any stable manure inside the frames, it must be taken out fifteen days after it has been put in for reasons before explained. Every evening towards sunset straw mats are thrown over the frames to prevent chilling. If the cold is persistent, or increases in severity, the straw mats should be doubled, and if it be very intense we may even fill up the spaces between the frames with warm stable litter, and do the same with the trenches between the rows. Asparagus treated in this fashion begins to show above the soil in from twelve to fifteen days, according to the heat to which the beds have been subjected. If the weather is very cold, they will take a much longer time in making their appearance. In the latter case we must redouble the precautions we have taken to keep in the heat, heaping on stable manure with a lavish hand, stopping up every nook and cranny in the frames and preventing the snow from melting on them. By this means we obtain perfectly white heads, but if we wish to have them tinged with pink we must take off the straw mats whenever the sun is warm and clear, and we shall find that they will be rapidly coloured by the action of the light. The heads should be cut every other day, and the cutting may be kept up for a couple of months. The following winter, the manure surrounding the frames and in the trenches is taken away,

and the plantation is allowed to rest quiet until the second winter, when the same operations may be gone through. We may thus continue to force every other winter until the quality and quantity of the *Asparagus* show signs of lowering. In the spring which follows the winter during which the forcing has taken place, we must, of course, refrain from gathering, otherwise we shall endanger the future safety of the beds. Forcing every other winter is as much as the plants will bear. In order to be able to force every winter, we should have two or four plantations, one or two of which should be used for the purpose turn-and-turn-about. As each bed ought only to be used for two months, a quadruple set is advisable, so that we may be kept supplied during November, December, January, and February.

Forcing in Heat.—The *Asparagus* grown in heat is known as green *Asparagus*, and is eaten with white sauce or as a garnishing with green Peas. This method of forcing is carried on from the month of November until the month of March. Each bed only yields for a month. A hotbed is made in the usual way and is covered with 2½ in. or 3½ in. of rotten manure, after which the frame and lights are placed in position. When it has cooled down sufficiently, that is to say, in about eight or nine days, the stools are planted. The plants chosen for forcing ought to be three years old, well grown, and provided with a full allowance of roots. The roots must be gathered together and their extreme ends clipped. The stools are then placed in the bed in such a way that they may touch and support each other. They are so arranged that their heads are all level. Rotten manure is then thrown in between the roots, leaving the eyes uncovered, and the lights and frame are so arranged that the heads will find sufficient room between the bed and the glass to grow to their proper length without being bent. Under an ordinary light we may thus plant four or five stools, each of which will begin to yield at the end of ten days or a fortnight, and will last a month. This mode of cultivation produces very small and short *Asparagus*, and it does not possess the fine flavour of the other kind. These beds want a good deal of looking after to avoid all danger of chilling. Fresh manure must be added immediately the heat begins to decrease. The frames must be kept carefully closed, and the straw mats must be taken away and replaced according to the state of the weather. This method of forcing, like the preceding, may be commenced in October and November, and by using several sets of beds, may be carried on during December, January, and February. Some growers have attempted to force old *Asparagus* plants, but they soon had to give it up, owing to its yielding such bad results. We are consequently obliged to fall back on the young plants brought up in the nursery for this special purpose; it is, in fact the only way to obtain good and abundant crops.

THE ENEMIES OF THE ASPARAGUS.

The principal enemies of the *Asparagus* are the *Asparagus* beetle (*Crioceris asparagi*) and the white worm or grub of the cockchafer.

Crioceris asparagi is a small beetle, long in the body, and of a red colour, speckled with grey and white spots. The larvæ are somewhat cylindrical, narrower towards the head, and are of a dirty olive-green colour, fleshy and shining. It only lasts in the larva state for about ten days, but during that time it commits the most formidable ravages. It deposits its eggs on the tenderest parts of the *Asparagus*, which are speedily attacked by the young larva as soon as it comes out of the egg. These destructive insects will devour a whole plantation in a brief space of time if their ravages are not checked immediately they are perceived. Incessant war must

be made against both beetle and larva. If there are only a few they may be crushed between the finger and thumb. They must especially be looked for during bright sunshine, which is the time they generally make their appearance. If they are too many to be destroyed in this way, we must take a bowl or other vessel full of water, and holding it under the *Asparagus*, tap the stems lightly, so as to shake off the insects into the water. As soon as they feel the blow their instinct teaches them to imitate death and drop off the shoot. When all have been caught the water may be thrown on the ground and the insects crushed to death with the foot; or, what is better still, the cold water should be strained off and boiling water poured on them. The *Asparagus* beetle lays twice a year—in the spring and in June or July.

The Mole.—The mole does not feed on the *Asparagus* plant, but it damages the roots by displacing them in forming its subterranean galleries, generally laying the roots bare by lifting them above the soil. The presence of the mole is easily discovered, and as soon as it is perceived, immediate measures for its destruction must be taken. We must either use mole traps, or else watch for its appearance hoe or spade in hand, so as to dig it out the moment it is seen lifting the surface of the soil.

The White Worm.—The white worm or cockchafer grub is one of the most dangerous enemies with which the gardener has to deal. The warmer the weather the better its appetite. If you see an *Asparagus* plant beginning to look withered without any known or apparent cause, gently turn up the soil at the foot of the stool, and the chances are that you will find a cockchafer grub feeding on the tenderest parts of the root. There is only one way to destroy it effectually, and that is to dig for it and crush the life out of it with your foot. Lime, sulphur, and other insect poisons have apparently no effect on it. Some growers sow Lettuces, in order to attract the cockchafer grub from the *Asparagus*, but the remedy is worse than the disease, for these pests flock into the *Asparagus* plantations from all parts of the garden, and attack the *Asparagus* as well as the Lettuces. GODEFROY-LEBŒUF.

THE POTATO DISEASE.

CONFIDENT as Major Hallet may appear to be in the efficacy of his "selection" plan for stamping out the Potato disease, I fear that he will find but few who will be as satisfied as he is as to the results. "J. S. W." thinks the matter worthy of further enquiry, and so it may be, but all experience so far points to the conclusion that it has no sound basis. I should like to have exact answers to the following questions from Major Hallet. 1st. What were the sorts of Potatoes to which he makes reference? 2nd. Did or did not the haulm show the spot and die off as other Potato haulm has done? Or 3rd. Did he lift all his Potatoes before the disease appeared? 4th. At what date did he lift his stocks? And 5th. Since he lifted, what proportion have gone diseased? Now, with reference to the first question I may say that I have lifted some kinds that, at the time of lifting, did not show a single diseased tuber, but some have shown it since; therefore, at the time of lifting, I might have asserted as much as Major Hallet has done, without reference to selection at all. 2nd. I might have lifted every tuber before the disease appeared, and thus perhaps saved every one sound, but they would have been small and unripe, and this also includes the third question, and as to the last one I may say with the melancholy Jacques "Thereby hangs a tale." Now, if Major Hallet's Potato plants lost their foliage, even as others did, and yet not a tuber, as he asserts, was diseased, then stamping the disease out is wholly out of the question. In such a case any escape in the part of the tubers must be due to soil or some other cause. The Potato disease has not been known to us more than thirty-five years, and there is no evidence beyond that of mere assumption that before that time any exact symptoms of it were visible. It came and found the plant in a healthy and robust state, just the food upon which it loved to exist, and from that time to this, it has come in the atmosphere just as cholera would come and strike down even the strongest and most

robust. With the present race of Potatoes as they now exist there is no hope of counteracting it, but if we can produce altogether a new race that shall have the leaves and stems entirely impervious to the minute and destructive spores of the fungus, then we shall accomplish far more than Major Hallett will do in a hundred lifetimes of selection. As far as we yet understand the Potato fungus, it is wafted by the moving atmosphere, alights upon the foliage of the Potato plant, and, finding the required moisture to induce growth, it sends forth its minute mycelium, which enters into the internal economy of the plant, bursting and destroying the cells and the cellular tissue in its progress, and penetrating finally into the newly formed tubers more or less, just as the nature of the plant stems, or rather the woodiness of the cellular tissue may present obstacles to its progress. It is thus that plants grown in rich soil where the growth is sappy and soft, and the tissue thin and watery always are worse diseased than are those grown in poor soil; and without doubt it is for this very reason that *Mamum Bonum*, a kind that has the hardest and woodiest of stems, exhibits so little disease. It is idle to talk about hereditary tendency, inasmuch as up to the moment of the first appearance of the fungus there is not the slightest reason to suppose that there is the least taint of disease in the plant.

A. D.

Centennial Potato.—Results exactly identical with those experienced by "K." (p. 267) followed from planting this Potato in my case; only three came up out of fifty sets. This freak has before occurred to some others of the American sorts, and it is a difficult matter to explain, except on the assumption that the tubers had been during the winter sufficiently exposed to the frost to cause blindness without softening the flesh of the tubers. I quite think that such was the cause of the peculiarity in my own case, but if others were to show the same results as had befallen me, then I must, of course, conclude that some other cause must be looked for. In my experience I have never found any Potato to repeat this feature in successive years.—A. D.

Cucumber Sir Garnet Wolseley.—At a recent meeting of the Border Counties Horticultural Society, held at Carlisle, Messrs. Joseph Hamilton & Son exhibited a large collection of Cucumbers, amongst which I noticed a brace named Sir Garnet Wolseley, which struck me as being the handsomest Cucumber that I have yet seen. I also noted that the brace shown grew from the same joint, and that they were "as like as two Peas." If the flavour of this Cucumber corresponds with its handsome shape and its apparent prolificness, it will become a favourite.—A CUMBRIAN GARDENER.

THE LATE MR. WILSON SAUNDERS.

HAVING read your obituary notice respecting my old friend Mr. William Wilson Saunders, I think that some of your readers might like a few more particulars respecting so eminent and scientific a horticulturist. Mr. Saunders was the son of Dr. Jas. Saunders, Vicar of Kirtlington, Oxfordshire; he went out as an officer in the Engineers to India, and before long returned, married, and settled in Wandsworth, where he began his well known collections. As he had two relatives near, named William Saunders, he obtained his old friend my father's permission to adopt the name of Wilson; he was afterwards generally known as Wilson Saunders. After some years he removed to Reigate where his place became world famous for its garden, plant houses, and scientific collections. Many horticulturists will remember delightful days spent at Hillfield, where much was to be learned from the collection of hardy plants, many of them very rare, and all through the scientific care of himself and of his able gardener, Mr. Green, now at Pendell Court, models of health. His plant houses and frames were full of plant treasures. His great botanical and general knowledge gave him advantages in cultivation such as fall to the lot of few. His long and devoted services to the Royal Horticultural Society are well known; he was Chairman of the Council at the eventful time when the proposal of the Commissioners made by General Scott gave the power of securing the position both of the Society and of the debenture holders. Though at the time having many anxieties of his own, Mr. Saunders keenly felt the rejection by the General Meeting of so desirable an end to our troubles. At the Exhibition of 1851 Mr. Saunders showed a very remarkable collection of different woods, which excited great interest. I might go on describing his worth as an entomologist, and in the Linnean and other Societies, but had better confine myself to the work which comes most within the province of THE GARDEN. Botanists and horticulturists, English and foreign, will long hold in esteemed memory the name of W. Wilson Saunders.

Heatherbank, Weybridge Heath.

GEORGE F. WILSON.

MILDEW AND OTHER FUNGI.

THE life history, and conditions required to be present for the development of the various moulds, is a very interesting as well as an important study for the consideration of cultivators of plants, whether these happen to be of a decorative character or important as articles of food. One thing evident is that some of these blighting moulds, which stand out prominently as the most disastrous in their effects, need for their growth atmospheric conditions completely different from those wanted by others. The more the subject is studied, the more it becomes evident that the germs of these parasites are constantly existent, and only lay dormant until the atmospheric conditions requisite for their active growth happen to be present.

To admit of mildew being injurious one at least of two things must exist; first, the presence of the fungus in an active state, with in some cases a second condition, that is of the plants upon which it preys being in a state that predisposes them to its attacks. In dry seasons when through absence of enough of moisture at the roots the growth of Peas and Roses is weak and languid, then it is that they are most affected by mildew, at once leading to the supposition that the attacks are attributable to the weakened state of the plants. Even the least observant in such matters are now aware that the *Peronospora*, or Potato blight, needs a moist close condition of the atmosphere to favour its growth, whilst the Rose and Pea mildew spread and luxuriate under the opposite conditions of a dry soil and correspondingly dry air. The Potato fungus invariably makes its attacks when the weather has been of a character such as to promote strong active growth in the Potato, not when weak and languid, a difference completely opposite and at once pointing to a remedy so far as regards Peas and Roses, by supplying them with sufficient moisture in dry summers; this has been generally acknowledged so far as regards Peas, but not sufficiently so in the case of Roses. I have noticed the comparative absence of mildew on Roses this summer when growing in open situations where their roots were fully exposed to the rains, as also its presence in considerable quantities where the plants were upon walls and their roots to a great extent out of the reach of the rain, affording evidence that, although the mildew which preys upon them is in a living active condition, yet if the plants are moist enough at the roots they can resist its attacks. The Vine mildew appears to be very different from each of the foregoing, the conditions that favour its spreading to any great extent seeming to be a damp atmosphere and low temperature combined, and I have reason to think that where the opposite of these is maintained it cannot make much progress. In several places Vines have come under my charge that had previously been managed so as to come on slowly and ripen their crop late, but which were so affected with mildew as to make their fruit all but useless, yet when treated to more warmth by early closing in bright weather with less atmospheric moisture and a little fire when it was cold and damp, the mildew never did more than appear slightly towards the end of summer on a few laterals that were left, and in the course of an additional year or two it disappeared altogether, nothing being done to the Vines beyond the usual winter dressing.

T. BAINES.

The Gooseberry Gourd (*Cucumis Grossularia*).—This miniature fruited Gourd is a pretty object when trained to a pillar as it is in the Water Lily house at Kew, where it is now very attractive. It has leaves similar to those of the common Bryony. The fruits are about the size of a moderate-sized Gooseberry, globular in form, and studded with numerous short prickles. In their present stage the fruits are green, and furnished with silvery, longitudinal bands; but later in the season they assume a golden-yellow hue, when they are even more attractive. Its pretty congener the *Bryonopsis laciniata* is a suitable plant to associate with it, as they perfect their fruits about the same period and thrive in the same temperature, which is that of a warm greenhouse. The house should be kept moderately moist during the summer months.—W. G.

"Improvement" of Stephen's Green.—Allow me to thank Mr. Smith, of Newry, for his much needed exposure of the stupid planting in Stephen's Green, Dublin, once a fine open square. Nothing is more sad to see than what is often done in gardens under the name of "improvement." Would Mr. Smith kindly tell us what he thinks of the landscape changes in the same garden? Once one could see a fine sweep of green lawn, but in passing the other day I saw no more of this. At one point I saw from the outside a massive looking bridge, suggesting some expensive cutting up of the once fine free surface into some puerilities such as duck ponds and formal ditches. I had not time to go in and see for myself, and therefore I should be glad if Mr. Smith would tell us what has been done. How hard it seems to teach the lesson that we ought to preserve, not destroy, the freedom and breadth of our garden lawns.—H. T.

WALKS AND FOOTPATHS.

It might not be justifiable to make a distinction between a walk and a footpath as a feature of utility in the garden, still we think there is or ought to be some distinctive difference, in so far as the construction is concerned, between say the walks of a kitchen-garden which have to withstand the wear and tear of traffic, and the footpaths in a pleasure-ground which are made to be comfortably walked on and enjoyed. Some walks must be made to be wear-resisting as well as for comfort; others for comfort alone. The perfection of a footpath is one made of grassy turf, tough and dry, and closely shaven; the perfection of a walk is perhaps one made of asphalt, and peppered over with very fine gravel; but as neither of these perfections is always practicable, or possible, or even permissible, the best attainable must content us. It is remarkable that people will decidedly walk on grass in preference to the smoothest and best kept-walks, so that by the side of a frequented walk there will always be found more or less of a footpath running parallel, unless some obstruction is placed in the way; hence people in every public garden are requested to keep off the grass, an injunction repugnant to their inclinations. It will be remarked that the footpaths or portions of footpaths least avoided are those which are soft and elastic without being wet—the foot at once responds to the soft comfortable sensation; but when a hard harsh surface is encountered, the foot instinctively turns to the Grass. The formation of parallel footpaths is compelled when the walk is gravelled with a hard material, or where the bottom is hard and rough, even if blended with fine material.

In making footpaths and walks, it is not necessary to take the soil out deep, as is often done, and to fill up the space again with rough materials, with the idea of making the path dry; this is just frustrating in the very worst way the first object that should be aimed at in making a comfortable footpath. A deep bottoming of stones or shingle destroys all elasticity and softness in a footpath, and does not at all add to its dryness. The line of a footpath can be made thoroughly dry, so far as draining can do it, and provision can be made for carrying off the surface water; but in order to do so, it is not necessary to dig a ditch in the middle of it, and fill in with rubble-stones but rather to drain one or both sides and leave the middle intact, with just sufficient excavation, say 4 in., on which to lay a thin coat of fine-sorted gravel, thus preserving as far as possible the elasticity of the soil underneath the gravel. A walk made on the opposite principle remains permanently comparatively harsh and uncomfortable to walk on, and becomes aggravated in very dry weather. A fact not generally recognised is, that over-dryness is exceedingly detrimental to roads and walks as well as over-wetness; we have even found it necessary to water the walks of a pleasure-ground to preserve them from breaking up from excessive treading—just as the water-cart benefits a road on which there is much driving in dry weather. Even in the making of walks, where much traffic is expected, deep excavation should be avoided. Macadam depended not on a large quantity of materials, but on a thin coating carefully laid on after the foundation of the road was built and made thoroughly dry. The most enjoyable footpaths we ever knew were made over bog-soil, well drained and levelled, with just a thin coating of fine river gravel over the surface; and there seems no reason why bog-soil, where attainable, should not be substituted for harder material for the bottoming of footpaths. On the modern iron road, the different sensation of the stone sleeper and the wooden one is at once felt. We do not, however, wish to discuss the question

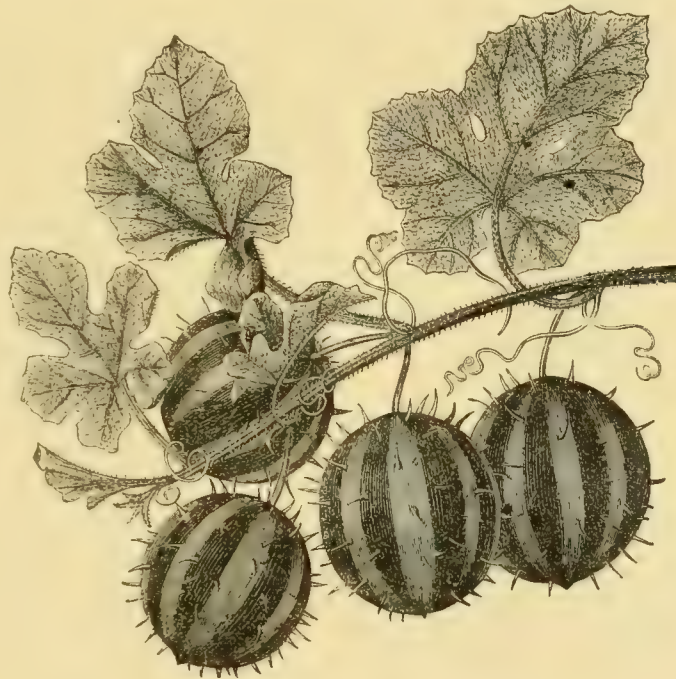
in detail how walks should be made; we only want to show that something imperfect in their construction, or something very wrong with their surface, compels people to take to the Grass, and so form the offensive footpath.

The direction which walks and footpaths should take about pleasure grounds and parks is a question that should be well considered, by landscape and other gardeners, in first laying out places; for this, if not attended to, will be a source of irritation ever after. These are often, indeed generally, laid down in an arbitrary sort of way, to complete the symmetry of a plan to be afterwards blotted out or abandoned and another course substituted. The current of humanity, like water, is difficult to divert from a natural channel. Footpaths are always an eyesore, especially when they cross fences; indeed nothing seems to impede the course of a footpath: one instance of this is daily under our notice, where the offensive line of marsh crosses a Grass plot over two iron fences, two walks diagonally, a shrubbery, a plantation, a wall 8 ft. high with two wires stretched on the top, and finally a deep fosse or ditch. It is just Suez or Nicaragua on a small scale—the path must be made sooner or later. In thus recognising the footpath as a route for the made walk, we

put an end to all stiff formalities in the matter of walk-making and in laying out grounds. A walk must lead to somewhere, and be for some use, and not a mere streak of gravel on which nobody has any desire to travel. It does not necessarily require to go straight—very few bye-paths do—but should rather have a tendency to curve right and left.

If the natural blending of the useful and ornamental were more generally recognised—always giving the useful the first thought—there would be fewer troubles with bye-paths. We could mention almost off-hand a dozen places where the kitchen garden produce cannot approach the kitchen without crossing under the principal windows, and being carried through the pleasure-grounds, unless a very wide détour is made. In other places the lines of walks are made to join at long acute angles, where the temptation is irresistible to cut across. Carriage-drives which people are expected to follow are made to deviate for some view or effective bit of scenery, and so in the end a bye-path is sure to be made. We could

name places with enormous expanses of sterile gravel walks leading to nowhere and useless, and where a constant war is waged with bye-paths in the shape of notice-boards, iron hoops, and stumps. No wonder a taste is growing up for the wild garden, the wilderness, and the woods, with cool and natural footpaths made at a fraction of the expense required for acres of hard gravel, and infinitely more enjoyable.—“The Gardener.”



The Gooseberry Gourd (*Cucumis Grossularia*).

The Old Double White Rocket.—I have a good plant of this which I brought from the neighbourhood of Manchester a year ago. It is dwarfer in habit, less spreading in growth, and with smaller leaves than the French white double Rocket so commonly grown about London. The flowers, too, are pure white. I have from time to time received many enquiries about this plant, and as to where it could be obtained, but this last question is a very difficult one to answer. I have now quite an interesting collection of Rockets; there are the white I have named, and, in addition, I have the old double purple, the new dwarf purple, and the new crimson. What these will prove to be I cannot say till they come into flower, which they soon will do, as I have good plants in pots. If they prove to be distinct they will make a very interesting group indeed. The dif-

ference in the character of the foliage of the two white types is much more marked than in the case of the purple varieties; and probably the last may not prove to be so distinct as they are represented to be.—R. D.

GARDEN DESTROYERS.

THE GARDEN CARABUS.

(CARABUS NEMORALIS.)

THE various members of the family to which this beetle belongs are among the gardener's most useful friends, as with very few exceptions they are carnivorous, living on small slugs, worms, caterpillars, and other insects. The garden Carabus (this insect is named *Carabus hortensis* by some authors) is one of the largest of this family, and is a deadly foe to the cockchafers, not only destroying their grubs, but attacking and killing the perfect insects whenever one comes within its reach. The females when laying their eggs in the ground often fall a prey to them. The benefit gardeners derive from these useful insects is simply incalculable, and it is the greatest pity that so many persons look upon them as unwelcome intruders in a garden, and kill them whenever they have an opportunity, instead of encouraging them in every way. The garden Carabus belongs to the family of beetles called Carabidae, which are nearly all carnivorous both in the beetle and grub states. This family contains a great number of members, about 307 of whom are natives of this country. They vary very much in size and form, but are all very active, and can run with



Grub of *Carabus aurionitens*.



Carabus nemoralis.

great rapidity. Some have well developed wings, and fly well by night; others have none, or merely the rudiments of them, and their wing-cases are, as it were, soldered together. They are nearly all smooth and glossy, and usually black, dark brown, or bronzy in colour. They may generally be found under stones, clods of earth, planks, garden rubbish, or anything resting on the ground under which they can creep, or at the roots of herbage, near the foot of walls, palings, &c. They may often be seen running quickly across roads or garden paths. The largest British members of this family belong to the genus *Carabus*, twelve species of which are found in this country. They all very much resemble the subject of this paper in general form and appearance, though they differ in certain particulars from one another. Owing to the habits and food of these insects, the grubs are very difficult to rear in confinement, and, consequently, it is by no means easy to determine the time they occupy in undergoing their metamorphoses, and I am not aware that it has been done in the case of this insect, the transformations of which, however, are probably as follows: The eggs are laid in the spring under stones or some other shelter, the grubs from which are now hatched, and in about two months' time attain their full size; they then bury themselves in the earth, where they form a smooth chamber, in which they become pupæ (chrysalides), only remaining in this state for about a fortnight, when they emerge as perfect insects. Many of the beetles of this family pass the winter under Moss or herbage at the roots of trees, palings, &c. The grubs are just as voracious as the beetles, and are, with very few exceptions, carnivorous. They may be found much in the same situations as their parents, but nearly always under some kind of shelter. The perfect insect is about an inch long, and is of a very elegant form when carefully examined. The entire insect is very hard and beautifully adapted to withstand the attacks of its enemies, and to resist pressure in its places of concealment. Its general colour is a dark greenish-bronze, but the head, antennæ, legs, and the underside of the insect are nearly black. The head is small, armed with a pair of powerful jaws, and furnished with a pair of long antennæ, composed of eleven joints; the thorax is squarish, the sides terminating at the base in an acute angle. The legs are long and fine, which enable it to run with great rapidity; each leg

is armed with a sharp spine at the end of the joint nearest the feet. The wing-cases form an oval, and entirely cover the body; they are slightly reflexed at their outer margins, and finely striated longitudinally, with somewhat irregular fine lines; on each wing-case are three rows of deep, well-defined punctures. The grubs are about 1 in. long, and are black and shining; their heads are provided with a pair of strong jaws and a pair of antennæ. Their bodies are composed of twelve joints, which are well defined, the first three of which alone bear legs; the last joint is forked. The figure of a grub which I have given is copied from Prof. Westwood's very valuable work, "Modern Classification of insects," and is the grub of *Carabus aurionitens*, which very much resembles that of the garden Carabus, but differs from it in the terminal fork of the body; that of the latter insect is somewhat longer, and, instead of being toothed, merely bears a few stiff hairs. Any grub, however, at all resembling this figure or description should be spared when met with, as they are not only beneficial themselves in gardens, but will in time turn into beetles, which are among the most useful insects. The pupa (chrysalis), as is the case with all beetles, much resembles the perfect insect, with its head and limbs closely folded to the body and covered with a thin, tightly-fitting skin. G. S. S.

ANSWERS TO CORRESPONDENTS.

Diospyros Kaki.—I have several healthy young seedlings of this Chinese and Japanese fruit tree. Will some one who has had experience in its culture kindly give me a few hints? Is it not nearly hardy? I have some remembrance of its having borne fruit in the open air in the Isle of Wight. I know that it fruited with Mr. G. F. Wilson at Heatherbank, and I should be glad to know what conditions as regards temperature, soil, watering, and exposure, he finds to suit it best.—T. B. G. [Mr. Wilson's plants are about 5 ft. high, and are now maturing several fruits which strikingly resemble Tomatoes in form, especially those of the Criterion variety. The plants are in pots somewhat small for their size; they receive copious waterings and are otherwise liberally treated. They grow in a good-sized house which is devoted to orchard-house fruit trees in pots, Vines, &c.; and during the greater part of the year it affords protection to hundreds of Lilies; therefore it is cool and airy, and not shaded except by the Vines overhead.—W. G.]

Diseased Grapes.—I send some berries of the Muscat of Alexandria for examination, and shall feel much obliged if you will give me some information as to the cause of their shrivelling. The water used is of the same temperature as the house, and the atmosphere that of the general temperature for Muscats. The disease makes its appearance when the berries begin to colour. The wood was thoroughly ripened, and a constant flow of fresh air night and day was kept up at back and front. The Vines otherwise appear to be very healthy.—G. P. [This is a case of what is called "shanking," a disease caused in a variety of ways, but in the present instance probably from the constant flow of fresh air night and day at back and front of the house. No kind of Grape, and particularly the Muscat of Alexandria, will stand such treatment in a season like the present. At all times cold currents of air should be avoided, but more especially till the Grapes have passed the "shanking" stage, which is, when the berries first begin to change from the sour to the saccharine state. Overcropping, a cold, wet border, or the opposite condition of dryness, and, indeed, a severe check of any kind, all tend to produce the disease; hence the remedy is obvious, viz., to avoid all these.—W. H.]

Spring Flowering Plants to be Sown Now.—Will you tell me the names of a few permanent plants, the seeds of which may be sown now, for spring or summer flowering? Also if there are any seeds of climbing plants suitable for walls, that would come up in spring? Would it do to sow now *Nasturtium*, *Convolvulus*, *Canary Creeper*, &c.? Also will some one give me the names of some perennial climbing plants, the seeds of which may be sown now? Is October or November a good month in which to plant *Jasmine*, *Honeysuckle*, *Virginian Creeper*, &c.—E. [Hardy climbers may be planted in October and November, or as soon as their leaves have fallen. It will not do to sow the seed of such tender plants as *Nasturtium*, *Canary Creepers*, &c. now, as if they started at once the winter would kill them, and if the seed laid dormant the wet might rot it. Sow these in the end of April. Few perennial climbers are raised from seed. *Ivy*, *Clematis*, *Ceanothus*, *Passiflora*, and similar plants are usually struck from cuttings or obtained by layers. Sow in spring under glass seeds of *Eccremocarpus scaber*, *Canary Creeper*, *Tropaeolum lobbianum*, *Colchae scandens*, *Sweet Peas*, &c., for climbers; and for something more enduring, plant climbing *Roses*, *Ivy*, *Cotoneasters*, *Ceanothus azureus*, &c. It is practically too late to get seeds to grow of any good permanent plants. All these should be sown early in the summer. *Primroses*, *Polyanthuses*, *Fansies*, *Pinks*, *Carnations*, *Pentstemons*, *Anemones*, *Alyssums*, *Arabis*, *Aubrietias*, and many other good permanent border plants should be raised from seed sown in May; then they are strong enough to stand the winter and bloom freely the following year.—A. D.]

Names of Plants. G. S. W. The name of the fungus is *Agaricus lacrymabundus*, a species sometimes mistaken for the true Mushroom. *Enquirer.*—1, *Adiantum venustum*; 2, *Pteris quadriaurea*; 3, *Asplenium bulbiferum*; 4, *Pellaea hastata*. J. A. B. 1, *Tropaeolum tuberosum*? 2, *Tritonia aurea*; 3, *Muhlenbeckia complexa*. A. B. *Phytolacca serotifolia*. G. E. C. *Sedum Sieboldii*. The leaf of *Fuchsia* is probably from the variety *Sundby*, but it cannot be named correctly from such scraps. E. H.—1, *Rudbeckia Newmani*; 2, *Aster Amellus*; 3, *Chrysanthemum Leucanthemum* var. *maximum*. J. C. N.—*Helichrysum rosmarinifolium*. C. C.—1, *Achimenes tubiflora*; *Tydaea gigantea*. E. M. D. *Nephrodium Serra*. E. St. A.—*Rudbeckia Newmani*. S. S.—A species of *Passiflora*, probably P. Pfordti, but we cannot name correctly without leaves. W. C.—The two *Conifers* are *Cunninghamia sinensis* for the light green kind, and *Sequoia sempervirens* for that with dark foliage; the others are *Atriplex Halimius*, and the leaf is apparently that of *Ilex latifolia*. A. H.—*Francoa sonchifolia*; the Fern from is *Platyloma rotundifolia*. G. F. W.—1, *Comptonia asplenifolia*; 2, *Quercus Robur pectinata*; 3, *Corylus Avellana laciniata*.

Insects.—D. The long box contains a species of sawfly in all its stages. The round brass box a species of *Julius*; the round paper box bees.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NOTES OF THE WEEK.

Planting on Benches in Hothouses.—A very pretty and simple system of arranging the interior of a glasshouse is adopted at Eaton Hall by Mr. Selwood. On the stone benches, which are in most houses generally bare, or covered with gravel, he places a good bed of free soil fringed with stones, with a little elevation here and there, and occasionally a fine piece of rock. This surface is then planted with Maiden-hair Ferns, creeping variegated Grass, or other free-growing and graceful plants; and it is so done that, with a slight difference of surface, a very beautiful effect is afforded, the edge of the bench being furnished with creeping and other plants that hide its stiffness. So far we have only a beautiful groundwork for any additional effects that it may be desired to add in the shape of other flowers or rare plants which may be brought into the house from time to time. These are placed between the tufts of Ferns and other plants on the well-furnished benches. A few Orchids or other choice plants will produce a much better effect in this way than when the house is full of flowering plants arranged in the ordinary way. And the same plan is adopted in the central pit of the house with a like result. Occasionally an elegant climber can be planted in the mass of soil and allowed to grow up the rafters. The house soon gets into a state in which it is very ornamental, if for any such reason as the family not being at home no flowers in pots are added. When, on the other hand, it is desirable to embellish the house, it may be done with comparatively few plants in a very graceful and effective manner, the pots for the most part being hidden behind the tufts of Ferns, &c. This plan quite changes the stiff shed-like aspect that the house would bear arranged in the usual way.

Vaccinium rugosum.—A remarkably handsome shrub bearing this name is now in flower in the Temperate House at Kew. In its present state it is about 2 ft. high and twiggy in growth. The stalkless leaves are lance-shaped, slightly toothed, much wrinkled on the upper surface, and have veins prominent on the under side. The flowers, which are borne from the axils of the leaves in clusters of from two to six, are about 1 in. long, and have a bell-shaped calyx of a dull red hue. The corolla is urn-shaped, of semi-transparent texture, and has five longitudinal ribs which are much raised. The colour is a pale flesh tint marked transversely by about ten wavy lines of deep red. The teeth of the corolla are small and reflexed, and of a pale yellow colour. Clusters of flowers are also produced from the naked stems, a character often noticeable in the *Thibaudias*, and, indeed, this plant may eventually prove to belong to that genus. It was presented to the Kew collection by Messrs. Veitch. Near to this plant is one of the same family and equally interesting, viz., *Epigynum leucobotrys*, bearing clusters of pure white, waxy fruits, each having a conspicuous black blotch at the tip.

Aristolochia floribunda. This very singular species is a highly interesting ornament in the stoves at the York Nurseries. The flowers are trumpet-shaped, with the inflated tube bent upon itself, like a syphon, and terminated by a widely-dilated mouth about 4 in. in diameter. The outside is remarkable for the network of prominent veins, which are longitudinal as well as transverse. The inside of the mouth is quite smooth, and most beautifully chequered with large irregular blotches of a rich chocolate colour on a creamy-white ground. As is usual with the generality of the species, the strong carrion-like odour is very perceptible. The remarkable tendency to produce its flowers from the old wood, and in such profusion, fully justifies the applicability of its specific name. With regard to the foliage and general habit, it is much in the way of the better known Bird's-head kind (*A. ornithocephala*).

Tea Roses at Eaton Hall.—In some climates a little warmer than our own, the Tea Rose is in favourable places happy enough all the winter, and flowers freely; but in this country the best way, generally, is to do what Mr. Selwood does at Eaton Hall—plant them abundantly under glass, and thus give them the climate which they enjoy. At Eaton Hall, where they do wonderfully well planted out in various houses, as many as a thousand buds may be gathered in a single morning. In North America, where there is a great demand for these things, and where the winter is very severe, they are also planted out systematically as Vines are with us; but for a private place, the way adopted at Eaton Hall, of putting them

here and there wherever the situation will suit them, and allowing them to grow freely, is the best.

The Nepalese St. John's-wort (*Hypericum nepalense*).—This remarkably pretty shrub is now finely in flower in Messrs. Backhouse & Son's nurseries, York. In appearance it is much in the way of *H. patulum*, but differs from it in having a more elegant habit, more slender branches, narrower leaves, and rather smaller flowers, but which are of the same rich golden colour. As to its hardiness there can be no doubt, as it withstood the last trying winter in the open air. Another extremely handsome species, and one that should be grown in every garden, is the oblong-leaved kind (*H. oblongifolium*), also a Himalayan shrub, but of erect growth, attaining 3 ft. or 4 ft. high even at York, and studded completely with bright yellow flowers, which are of larger size than any other cultivated kind, omitting the Rose of Sharon (*H. calycinum*). At the York Nurseries this species is not so fine this season as it has hitherto been, which is probably owing to its not having recovered from the severe test it experienced last winter.

Cryptomeria elegans.—To the lover of trees it is a great pleasure to see the beautiful and distinct specimens which this tree is forming in our gardens. Its peculiar brownish-purple hue, which, with its form, makes it so distinct, sometimes deceives. Messrs. F. & A. Dickson tell us that a healthy batch was sent back to them from a person who supposed they were dead, judging by their colour, and we hear of visitors to good places expressing concern for trees of it which they suppose to be injured, but which were really in perfect health.

Bauera rubioides.—Amongst the greenhouse plants now in flower in Messrs. Backhouse's nursery, York, is a remarkably neat shrub bearing this name, and as it is by no means a plant often met with it is well worthy of notice. The plants were 1 ft. or more high, of twiggy growth, and the slender branches are furnished with small lance-shaped and slightly toothed leaves in whorls of about six. The flowers are borne singly from the axils of the leaves on the upper part of the branches, and are each about the size of a six-penny piece, with eight rosy-pink petals encircling a tuft of golden stamens, rendering the plants very attractive and pretty. It is a member of the *Hydrangea* family and a native of New Holland.

Agapanthus Mooreanus.—This charming bulbous plant is somewhat in the way of the well known *A. umbellatus*, but it is smaller in all its parts. It is, however, quite as hardy as the latter, and withstands our winters out of doors—at least it has done so in Mr. G. F. Wilson's garden at Heatherbank, Weybridge, where plants of it are now in flower which have withstood the past winter. As regards the hardiness of *A. umbellatus* we may state that we saw a bed of it at Mr. Ware's nursery at Tottenham, which was planted a year ago last spring, and Mr. Perry assured us that it had withstood the last winter with only the application of a little mulching. Near this bed was one that had been planted the present spring and the appearance of the plants apart from their size was much in favour of those that had remained out during the winter.

Pelargonium Endlicherianum.—The number of species of *Pelargonium* which approach to anything like perfect hardiness in our climate is very small, and of these this is probably the hardiest. On the rockery at Messrs. Backhouse & Son's nursery at York it has withstood the past few winters, and is apparently well established. A frameful in the adjoining ground is now in flower, and has a remarkably pretty effect. The leaves are somewhat of a heart-shaped form with irregular serration, and have a hoary appearance. These contrast finely with the flowers, which consist of two large upper petals of a deep rosy hue, beautifully pencilled with rich carmine. The three other petals are apparently reduced to mere scales, for in none of the flowers were they conspicuous.

Mormodes pardina armenaica.—This beautiful new variety has for some time past been a great ornament in the Orchid houses in Mr. Bull's nursery at Chelsea. It has long, somewhat erect, racemes of flowers of the singular form which is characteristic of this genus. They are of fine texture and of a bright orange colour instead of pale yellow as in the type, and emit a delightful fragrance. As in the type the pseudo-bulbs are elongate and terminated by a few broadly lance-shaped leaves of a pale green colour.

The Phylloxera.—Mr. David Thomson writes as follows in the *Times* of Tuesday last concerning this pest: "Several years since, when scientific experimenters were busy propounding remedies for this fell destroyer of Vineyards, I printed a letter and addressed it to the Minister of Agriculture of France, in which I stated my conviction—from my own experience of the *Phylloxera* in Scotland—that no remedy that could be applied would eradicate the insect without at the same time killing the Vines. I recommended that wherever the Vines were affected they should be destroyed and the ground cropped with cereals for two or three years, by which time the insect would have perished, as I had proved that

it could not exist apart from the genus *Vitis*. It is so far satisfactory to me that it appears from the letter of your Geneva correspondent, under date August 27, that the opinion and advice I tendered to the French Minister of Agriculture seems to be in process of being proved correct; for, as shown by your correspondent, all attempts at checking the devastating ravages of the *Phylloxera* on the Continent have proved futile. Your correspondent's account of the attack in the Vineyards at Chambéry, 'where they were cut down and every branch burnt on the spot, and the ground sown with quicklime,' and that from that time there has been no further appearance of *Phylloxera* in the canton, so far proves my own experience and the advice I gave to be correct. Again I would reiterate my conviction that no remedial measures having for their object the destruction of the insect and the saving of the Vines will ever prove successful, and that nothing short of a simultaneous stamping out of the affected Vines will save the French and other Continental Vineyards from destruction as far as any human means are concerned."

Rogiera gratissima.—This old favourite certainly now-a-days needs but little recommendation, but the gay appearance which it presents at this season in the greenhouses at the York Nurseries, suggested the present note, as in few places is it grown so successfully as it is there. The plants under notice are planted in boxes nearly 3 ft. square, liberally treated, and grown in a well ventilated greenhouse. The result is abundant and continuous flowering, and complete immunity from the insect pests which infest the plants when grown in a high temperature. For cutting purposes there are few more desirable plants at this season, for combined with the delicate blush hue of the flowers, with their deep rosy tubes, they emit a delightful perfume which fills the houses in which they grow.

Oncidium dasystyle.—This singular Orchid is one of the prettiest and also one of the most uncommon amongst the large number of *Oncidiums* in cultivation. Its flowers are borne in the usual racemose manner, and are about 1 in. in diameter. Their ground colour is a creamy-yellow with the sepals mottled with chocolate, and the wings of the column profusely spotted with that colour, giving the blossoms a pretty appearance; but the most remarkable point about them is the rich black crest at the base of the lip partly brightly polished and partly velvety, which, taken together with the general form of the flower has the appearance of an insect. It is a native of the Organ Mountains; hence in cultivation it requires an intermediate temperature. It is now finely in flower in the Royal Exotic Nursery, Chelsea.

Aralia spinosa.—At this season, when the number of hardy shrubs in flower is but few, this *Aralia* is especially welcome, the huge plumes of white flowers terminating the branches, which are furnished with handsome, broad, pinnate leaves, having a striking effect. Another elegant shrub, and one that so closely resembles this *Aralia* that it is often mistaken for it, is the Mandshurian *Dimorphanthus* (*D. mandshuricus*), which has the additional property of being hardier, a decided advantage in the northern counties. In the York Nurseries we noticed grand examples of both shrubs, but the *Aralia* was considerably more injured during the past winter than the other, and bears at the present time unmistakable evidence of its severity; consequently it is not such a grand object as it has been in former seasons.

Tricyrtis hirta nigra.—We saw a few days ago a variety of the well known Hairy *Tricyrtis*, bearing this name in Mr. Stevens' collection, which is well worthy of notice. As regards size, habit, &c., it is the counterpart of the type, but the flowers are very much darker in colour, being a black purple mottled here and there with specks of a lighter hue. As an autumn flower it is a valuable acquisition; it is very floriferous, and grows vigorously when planted in a partially-shaded place in a damp border of peaty soil.

Monstrous Lily.—One of the most remarkable instances of the fasciation of Lily stems came under our notice a few days ago. It was a stem of *Lilium auratum* sent to Messrs. Veitch & Sons from Dr. Harris' garden at The Grange, Lamberhurst. It bore 150 flowers of moderate size closely arranged and formed a symmetrical cone 17 in. high and 16 in. in diameter at the base. Mr. Myles, the gardener, asserts that he had two such examples amongst his Lilies this season. A similar instance of this floriferous tendency was communicated by Mr. G. F. Wilson. The plant in question bore 123 blossoms on a stem 6½ ft. high and was twice the girth of a man's thumb at the base.

A Large Century Plant.—On the lawn of Mr. John F. Phillips, residing at Brooklyn, New York, may now be seen a magnificent specimen of the Century Plant (*Agave americana*), which will be in full bloom in a few days. This is believed to be the largest plant of the species ever grown in the temperate zones. It was brought here from Cuba, in 1874, since which time its growth in size has been scarcely perceptible, with the exception of the enormous stalk or flower-spike, which first made its appearance on the 12th of

July last. This has now attained the height of 22 ft., and the circumference at the base of 5 in. When fully grown it will fall little short of 30 ft. in height in all probability. Its thick lanceolate leaves are 7 ft. long, and the diameter of the plant is thus about 15 ft. At the top of this immense flower-stalk the flower-spikelets have already grown out at irregular intervals, some of these having reached 2 ft. in length. The late cool weather here has somewhat retarded the bloom, which is now most anxiously awaited. It is estimated that it will produce 1000 separate blossoms, and it is regarded by all who have seen it as a great floral curiosity. Large crowds of people are attracted to the grounds daily. If any of our European friends have succeeded in growing still larger specimens of this curious plant, we would be glad to hear from them.—H. HENDRICKS, Kingston, N. Y., U.S.A.

Campanula pyramidalis as a Border Plant.—The long and handsome mixed borders by the walls in the College Gardens at Dublin are now adorned by very striking pyramids of this fine old plant. Some of them are well over 6 ft. high, gradually tapering from a rather wide base to a pointed top, and furnished with myriads of blossom. They are effective at a great distance off, showing well against the foliage of the well-covered wall behind the border. The white variety is, if anything, more beautiful than the blue. Considering the value of this fine old plant, both for the outdoor and indoor garden, and also for rooms, halls, or windows, it deserves more attention and better culture than it usually gets.

The Rock Daphne (*D. rupestris*).—This miniature shrub has been aptly described as a "real Alpine Gem," and certainly it is a gem that cannot be too well known, whether it be for adorning the rockeries of those who especially love Alpine flowers, or as an ornament in an ordinary greenhouse, for which it is alike admirably suited. Its usual season of flowering is in spring and early summer, but the second crop of flowers, which render the plant beautiful at the present time, is no less welcome, and is further evidence of its high merits. In the York Nurseries it is now bearing its clusters of deep rosy blossoms on plants grown in pots, and their powerful yet delicate perfume is very grateful.

Japanese Privet as a Flowering Shrub.—Among the few flowering shrubs which the severe weather has left us we noticed this, very fine, in Messrs. F. & A. Dicksons' extensive nurseries at Chester; in the form of small grafted standards, and also as very dwarf plants on their own roots it seems to flower more effectively than is the case with ordinary specimens. Some plants, not more than 1 ft. high, had a good many flowers on them, and young standards were also full of them. It is a perfectly hardy shrub, having stood during the past winter when other new Privets perished.

Grouping in Greenhouses.—We noticed in the gardens at Browne's Hill near, Carlou, a way of grouping the plants of various families together in the houses, which is an improvement on the ordinary mode of arrangement, or at least a desirable change. For example, the Coleuses were together on one bench, and the same plan was carried out with groups of Ferns, Dracenas, and the like. This prevents the monotony which results from the system too often followed, and which prevents much interest being taken in the plants. There is nothing like this prim dotting system in Nature. The grouping plan does not preclude effective mixtures when desirable as they would be if for contrast only.

Tropæolum Triomphe de Gand as a Roof Plant.—This has a wonderful effect in the great corridor at Eaton Hall, where it is trained on the roof, its shoots hanging down straight as cords for many feet, dotted with brilliant flowers—that is to say, it grows up 15 ft. or more to the roof, and hangs down 6 ft. afterwards. In the same position in the corridor grows the *Abutilon vexillarium*, which seems equally free and graceful.

Testimonial to the Rev. H. H. D'Ombraim.—It is proposed to present the Rev. H. H. D'Ombraim with some acknowledgment of the service which he has rendered to floriculture by his writings and practical support; and more especially to the culture of the Rose by establishing a "National Rose Society." The proposal has the assent of the Rev. Canon Hole, President of the National Rose Society (to whom subscriptions not exceeding one guinea may be sent), and other eminent Rose growers.

Ipomœa bona-nox.—It is surprising how seldom this remarkable stove plant is grown. Its large white trumpets are so valuable for taking indoors in the evening, when they open and have such a delicate odour, that it is used for this purpose at Eaton Hall; there it is trained along a wire in a warm house.

Fuchsia gracilis.—We notice a stock of this elegant hardy Fuchsia in Messrs. F. & H. Dicksons' nurseries at Chester. The Fuchsia called Tom thumb, though quite distinct, is sometimes called *gracilis*, though it has no claim to the name. Can any one tell us about the origin of this?

THE FLOWER GARDEN.

APONOGETON SPATHACEUM VAR. JUNCEUM.

THIS pretty addition to out-door aquatics was sent to Kew a year or two ago from British Kaffraria. It has since then been somewhat widely distributed in English gardens, owing to the freedom with which it may be raised from seeds which are produced each season in abundance. Unlike its better known congener, *A. distachyon*, it is of erect habit, and is altogether a smaller growing plant. Its flowers, which are arranged in a fork-like manner, are tinged with rose. They are, however, quite devoid of scent, a property so much appreciated in *A. distachyon*. Its varietal name is derived from its rush-like leaves, which in the type are considerably less terete. It thrives best in a shallow running stream, submerged about 2 in. It delights in any gravelly soil, mixed with fibry loam, and a small quantity of leaf mould. As to its absolute hardiness in this country



Aponogeton spathaceum var. *junceum*.

we are unable to speak, as during the last winter it was afforded the protection of a frame, on account of its comparative rarity. Our engraving was prepared from the original plant received from South Africa, which flowered in the out-door aquatic tank at Kew during the present summer. —W. G.

DUTCH BULBS FOR SPRING DECORATION.

(THE HYACINTH.)

JUST now, when the summer's hues are deepening to autumn crimson, and the great change which leads on to the decay of winter is slowly passing over the face of Nature, attention may properly be turned to the seasonable matters of selecting and cultivating the many sorts of Dutch bulbs that have found their way into the market, and for urging the necessity for losing no time in making selections, so as to ensure the highest degree of success at the blooming season. The bulb farms of Holland have been steadily increasing their acreage for this sort of produce year by year to meet the demands made upon them by this and other countries. The trade with Great Britain is enormous, and must be set down to the growing taste of the community for much that is beautiful and charming amongst flowers.

Of the many Dutch bulbs, the Hyacinth, Tulip, and Crocus are the most important, because the most ornamental and most diversified in colours of all the productions from Holland, and therefore better worthy of general cultivation, especially when growers have limited means and restricted accommodation. Such plants as the varieties

of the *Narcissus* are beautiful enough and rich in colour, but they are by no means so showy, neither are they so well adapted for what is technically termed indoor decoration, their foliage being apt to become spindled in a confined atmosphere—much more so than that of the *Hyacinth*—and the flowers proportionately weak and wanting in colour and substance. They do very well, however, for blooming in pots in March; but, with the exception of the *Polyanthus*-flowered types and the *Jonquil*, are not good forcers. These, then, form the most important bulbs for winter and spring decoration, for small growers more particularly. Those who grow bulbs more largely have their *Ixias*, *Sparaxis*, *Babianas*, *Nerines*, *Fritillarias*, *Tritonias*, and other miscellaneous subjects, some of which are not of Dutch origin, but all blooming in winter and spring, and forming features of rare beauty when in flower. Of course, the stately *Anaryllis* forms the most aristocratic section of all the bulb community, and where there is anything like warm greenhouse accommodation no person should be without a few, for they only require to be seen to excite admiration, and half the care and attention bestowed on *Hyacinths* will be productive of satisfactory results.

Hyacinths, *Tulips*, and *Crocuses* are bulbs for the million, because it happens to suit their constitution to a nicety to be in total darkness for two or three months during the growing season, and at the same time they are very convenient for all those who have nothing but window space for their disposal. The bulb, as soon as it comes in contact with a humid atmosphere, pushes roots into the soil in one instance and into water in another, and it is a very strange fact that the roots, in the case of a *Hyacinth* in a *Hyacinth* glass, will live and luxuriate in water alone, when they would perish in earth and water if the one was not properly proportioned to the other. This in all probability accounts in many instances for the oftentimes unsatisfactory yield of bloom for first-class roots. If cultivators would only reflect one moment upon the nature of bulbs they would perceive that a vast amount of nutrition is stored up in these concentrated layers of vegetable matter to be given out during the season for the benefit of both root and stem, and the wisdom of acting with intelligent caution would be more apparent.

It used to be laid down as an axiom that the bulbs will produce the best flowers that have not a single drop of water given to them for the first two months after planting. This refers more particularly to the case of *Hyacinths* in pots. The soil intended for their growth should be rich and open, full of fibre, and sandy in its nature. All ingredients likely to incline to a soddened character should be strictly avoided. In potting leave one-third of the bulbs above the soil, and the soil should be pressed firmly about it, but not immediately below the base of the root; why? because many of the *Hyacinths* throw out strong, thick, fleshy roots that, coming downwards in a mass, do not readily penetrate the soil beneath, and in consequence the bulbs are thrust up out of it, and have to be replanted again to the danger of injuring the roots. If the mixture be as it should be, of an elastic nature the roots will soon penetrate it, and one great secret of success in cultivating *Hyacinths*, whether in pots or glasses, is to get a good and free root action as soon as possible.

The previous remark about not pressing the soil too hard just under the base of the bulb applies to those who do not put their pots out of doors under a covering of coal-ashes or some such material. When the latter course is followed—either by placing the pots in a cold frame or on an ash bottom in the open ground—the weight of material resting on the surface soil of the pots prevents the bulbs being thrust up out of the soil when a strong root action commences. Some growers invert a small pot over the crown of the bulb before covering with *Cocoa-fibre*, cinder-ashes, or such like, and this should be put in to the depth of 4 in. The presence of the inverted pot prevents the covering from coming into immediate contact with the growingspike, and prevents anything like rot. When not so protected, the tips of the growing spike will become disfigured, and this disfigurement shows itself at the points of the main leaves afterwards. When once covered up snugly, the pots need not be looked at for six weeks or two months.

Hyacinths that are intended for exhibition purposes, or that are required to be grown as fine as possible, should be repotted about the middle of October, and another lot early in November. We have known very fine *Hyacinths* obtained from bulbs potted as late as the second week in December, but unless the roots are carefully preserved they are apt to become dry and shrivelled. *Hyacinths* and other bulbs that are exposed to drying influences in shop windows are apt to suffer in this way.

All who cultivate *Hyacinths* know that the varieties differ greatly in the matter of constitutional vigour. Some incline to large bulbs, producing, however, flower-spikes of medium size; and as in the case of *Tempel Van Apollo*, single red, many of them. Large fleshy roots are apt to do this. Others, of which a notable example will be found in *Duke of Wellington*, double red, never produce but an ordinary sized bulb, and yet it very frequently produces an immense

spike of large, fully double flowers. It is a mistaken idea altogether to suppose that the largest bulb of any given sort produces the largest spike; and although it is quite true that a very good judge of what bulbs ought to be, could make a selection of capital flowering roots, it may and does happen that he has passed over some equally good and many much better. On the proper treatment of the bulb depends mainly its success, in a flowering point of view; but it must, however, be borne in mind that skilful cultivation is a powerful auxiliary towards bringing out the true character of the spike and the substance and colour of the individual blooms.

For the benefit of those who wish to have bulbs blooming from Christmas onwards, we may state that the roots should be potted forthwith. If planted in the proper material, and treated as already indicated, the pots will be getting tolerably full of roots by the second week in November. The grower can then select as many as are required of the earlier-flowering varieties, place them in a warm greenhouse temperature, there to remain for three weeks or a month; then they can be removed to a stove house, placing them as near the glass as possible, and allowing the pots to stand in saucers, which need to be kept in water. There are not many Hyacinths well adapted for forcing, but the following are most useful for the purpose: *Homerus* and *l'Ami du Cœur*, single red; *Waterloo*, double red; *La Tour d'Auvergne*, double white; *Grand Vainqueur*, single white; and *Orondates*, single blue. The pretty double white *Roman Hyacinth* should not be overlooked; it is valuable for its extreme earliness and pure white single flowers, coming into flower in October and November, and, with a succession on to February. Those who make a business of forcing Hyacinths, &c., for market purposes, and require to pot them early, get their bulbs over from Holland in August; they are then potted, and placed out-of-doors in long beds, and covered to the depth of 4 in. or 5 in. with a covering of spent Hops and rich manure. Under this covering the bulbs make strong roots, and as they grow upwards, they are taken to a warm house, and pushed on into flower. The *Roman Hyacinths* are generally potted and placed in heat at once, where they soon become active.

Some good Hyacinths will be found amongst the following, which are all moderate in price: Double red—*Lord Wellington* and *Noble par Mérite*; double blue—*Bloksberg* and *Laurens Koster*; double white—*La Tour d'Auvergne* and *Prince of Waterloo*; single red—*Emmeline*, *Fabiola*, *gigantea*, *Duchess of Richmond*, *Macaulay*, *Norma*, *Robert Steiger*, *Sultan's Favorite*, and *Von Schiller*; single blue—*Baron Van Tuyl*, *Bleu Mouvant*, *Charles Dickens*, *Couronne de Lille*, *Grand Lilas*, *Marie*, *Mimosa*, *Orondates*, *Regulus*, and *Vulcan*; single white—*alba superbissima*, *Cleopatra*, *Grand Vainqueur*, *Grandeur à Merveille*, *Madame Van der Hoop*, *Seraphine*, and *Themistocles*; single yellow—*Alida Jacoba*, *Anna Carolina*, and *Heroine*. Those who require some extra fine varieties for exhibition purposes will find them in the following: Single red—*Fabiola*, *Gari-baldi*, *Koh-i-noor*, *Lord Macaulay*, *Pelissier*, *Solfaterre*, *Von Schiller*, and *Vurbaak*; single blue—*Baron Van Tuyl*, *Charles Dickens*, *Fernu Khan*, *General Havelock*, *Grand Lilas*, *King of the Blues*, *Lord Palmerston*, and *Marie*; single mauve—*Haydn* and *Sir Henry Havelock*; single white—*alba maxima*, *La Franchise*, *La Grandesse*, *Grandeur à Merveille*, *Mont Blanc*, *Seraphine*, and *Snowball*; single yellow—*Duke of Malakoff* (sometimes classed with the single reds), *Bird of Paradise*, and *Ida*.

R. D.

ENGLISH AND FRENCH FLOWER SHOWS.

It is eminently characteristic of English people that they are incessantly running down their own country; whether it be its climate, its constitution, the manners and customs of its people, or its productions, you are always sure to find plenty of detractors, according to whom it must be the most intolerable country for any one to live in. No art, no music, no drama, in fact nothing, what wonder is it that foreigners take us at our own estimate, and conclude that a glimpse of sunshine is a rarity, and fog the normal condition of our atmosphere—that we have no taste, and that if there be anything artistically good amongst us it is of foreign origin?

Now amongst the things of which we have continually read the cuckoo cry “They manage these things better in France” is that of flower shows. An English visitor happens to drop in upon a French flower show, he sees its pretty and tasteful arrangement, he contrasts it with some formal tent which he recollects in his own neighbourhood, and he immediately exclaims “What a contrast!” Why cannot we take a leaf out of their book and aim at something better than those long straight tables, or rows of green boxes? He does not look into the matter, and hence runs away with the notion that we are lamentably behindhand. I should like, then, as one who has seen perhaps as much of flower shows in this country as any one, and who knows a little of them also in France, to record opinions

which may be somewhat opposed to these views, but which are at any rate the result of careful looking into the matter.

I am quite ready to admit that, with an exception or two, formality is the rule at our flower shows. The Royal Botanic Society has for a lengthened period held its flower shows in a tent, where the endeavours to give an artistic appearance has been successful; the undulating ground and the absence of stages (the pots being placed upon the green sward) do this; and the Royal Horticultural Society has followed it; but even in these cases it is essentially different from a French flower show. All the groups of one kind are formed together; no effort is made to conceal the pots, and, although excessively beautiful, the beauty depends more on the plants than on the arrangement. In looking at French flower shows, we are struck I think with a few things essentially different from our own. In the first place, there is the almost entire absence of the amateur stand amongst exhibitors; they are, indeed, *rara aves*. To a Frenchman, especially to a Parisien, it seems utterly incomprehensible that a young fellow with means should think of devoting his spare time to the cultivation of his garden, or should go through fatigue and hardship, for the purpose of winning a prize which does not represent one-tenth of the expense that he has gone to for the purpose of obtaining it. It is not that he does not like flowers; on the contrary, they are a real pleasure to him; but to spend money, to go through the worry and anxiety that amateurs do with us, is something he cannot understand. To go through any amount of squeezing to resort to any dodge for the purpose of getting a place at a premier representation of a new play to be made into a pancake at the reception of some grand lady, is quite a different thing, for the other he has no inclination; the exhibits are, therefore merely confined to the growers for sale. When at a recent flower show in France, I mentioned that at the National Rose Society, while there were thirty-two growers for sale who exhibited, there were eight amateurs, some considerable amount of astonishment was expressed. I hope some believed me, but there was an incredulous smile on others, which betokened that I was perhaps drawing the long bow. For somewhat of the same reason we are, I think, able to account for the comparatively small size of the plants exhibited by nurserymen. Any one who expects to find such establishments as those of Veitch, Bull, Williams, or any other of our great London nurserymen in Paris or its neighbourhood will be disappointed, for, with the exception of Thibaut & Keteleer at Sceaux, I know of none that can lay claim to anything of the kind, and in going over their houses, you see none of the grand specimens which you will find in many of our first-rate establishments. An exhibit of a French nurseryman is composed principally of what are called with us, I believe, trade plants; the enormous plants (too large perhaps) which you will find in any great London nursery, or exhibited at our great flower shows are never seen, and doubtless these smaller-sized plants are more easily grouped and can be more tastefully arranged than the larger ones, although they do not exhibit proofs of cultivation and skill as the others do. The French nurserymen have no inducement to grow these large plants. The monied classes with them do not as a rule spend their money on greenhouses, conservatories, or stoves, and hence such plants would be a drag on their hands.

The whole system of a French flower show is different from ours, and is one that we could not ensure; take for example their judging. A French flower show is never a one-day affair, it generally lasts for three or four, and the first of these, or at any rate, the afternoon, is given up to judging. A jury as it is called goes round—this consisting sometimes of twelve or fourteen persons; the plants are looked at, and much pleasant gossiping takes place. When the decision is wanted, however, *Mons. A.* has recognised some one at the other end of the tent, and has to be brought back; after a time a show of hands is taken and the decision is made, but as the exhibition has been arranged for effect, the exhibits in the same class are all scattered. A considerable amount of walking has to be done; thus at Brie in the class for 200 blooms of Roses, the competing exhibits were as far from one another as it was possible for them to be, and of course, if there was any difference of opinion the ground had to be travelled over several times, and imagine Mr. Baker, who so recently described his method of growing Roses in your paper a little while ago, coming up from Exeter, placing his magnificent blooms before a jury such as I have described, and then obliged to leave them for twenty-four hours before any one looked at them, when the lovely bloom and freshness would have passed away. How very different would Mr. Fish's ideas of his forty-eight have been if he had seen them there even in this cool season.

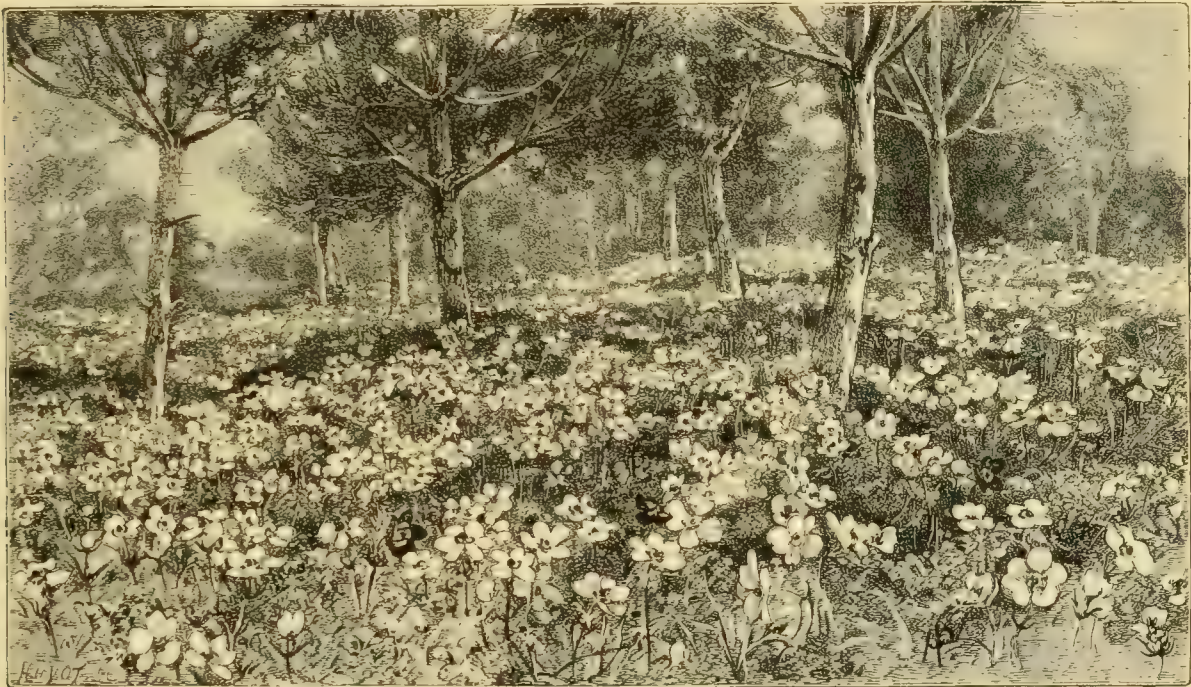
I think these few facts will account for the difference between French and English exhibitions, and will show how impossible it is for one to copy the other. Each has its points of excellence, and each must retain them. You enter an exhibition in England, and your eye is at once caught by the marvellous excellence of culture displayed before you; be it Azaleas, Pelargoniums, Orchids, Dracenas, Roses, Crotons, or Grapes, Pine-apples, or Peaches, you at

once confess that you are in the presence of plants that evidence skill, patience, and intelligence. You say, perhaps, they are somewhat stiff and formal; that it is a pity they are so orderly arranged; but you see at once how necessary it is where the competition is so keen and close, and where it is needful to be able to compare one with the other. I shall never forget the utter blank astonishment with which some of the French Rose growers regarded the marvellous pot Roses at the exhibition of 1866; nor again the surprise of the Dutch bulb growers when they came over some years ago to see the competition for the prizes they had themselves offered. In truth, nowhere in the world can we see such splendid examples of culture as with us, and it would be I think an evil day when, for the sake of getting a little more prettiness into our exhibitions, we were to discourage that close attention to growth which at present we are enabled to show.

You enter a French exhibition, and you are at once taken by the exceeding taste displayed; there is always sure to be an artistic piece of rockwork and a fountain; then from this fountain a stream runs through a good portion of the tent, and plants are amazingly well grouped round it. Probably outside the tent a garden has been extemporised; beds of flowers are arranged both outside and inside, and one's first exclamation will doubtless be, "Why cannot we introduce such a

ANEMONES IN THE SOUTH OF FRANCE.

THERE are few prettier sights in spring than a woodland carpeted with the little Wood Anemone (*A. nemorosa*), a common native plant in this country and, indeed, throughout Europe and a greater part of North America. Of similar gregarious habits are many other species of Windflower which are indigenous to the south of Europe. The annexed engraving represents a field of the old *Anemone coronaria* and its forms as it grows in the south of France, and is used in this instance to suggest that similar effects may without much difficulty be obtained in our woodlands. A sunny piece of warm, sandy ground would grow these Anemones just as well in England as in the south of France or Italy. The only difference worth noting would be the time of flowering, which would be in spring with us. To make, in fact, a turf of the Anemones of Southern Europe would be a charming idea in the wild garden. The main thing is to see that the plants are masters of the ground, and not ousted by other and coarser ones. The selection of the ground is the main thing, that is, if the colony is to be established without expense. In many large places there would be little difficulty in finding spots where they would grow. Even in heavy soils one might find dry and sunny bits of hedgebanks where the Anemones, heretofore grown in gardens, could



Field of Wild Anemones in the South of France (from a photograph).

system of exhibitions in England?" But this will I think be modined when we look beneath the surface, and see the conditions in which it is arranged.

My simple object in this short paper is to induce us to be satisfied with our own arrangements, and in no way to disparage our neighbours. I am quite sure that we could display as much taste in arrangement if we could rest satisfied with the places; and I am equally sure that they could produce as fine plants as we do, if they had the incentive to it that there is amongst us; in fact, if it would pay, we should each probably keep to our lines, and the interests of horticulture in both countries will, I conceive be best served by our so doing.

DELTA.

Colchicums and Autumn Crocuses.—These interesting autumn flowering bulbs are now coming into bloom, but being destitute of foliage they look best when the ground under them carpeted with some dwarf evergreen plant, as on bare earth their delicate blossoms get splashed by heavy rains, and flowers without foliage are never satisfactory. Where permanent Ivy edgings are used such bulbs should be planted just inside them; the blossoms then rest on the Ivy leaves, which set them off to advantage.—J. G. L.

be easily established. Our engraving only shows the older garden Anemone, but the new scarlet Anemone would prove equally hardy and free in the wild garden. V.

MIXED FLOWER-GARDENING.

FLOWER-GARDENING has been, for the season which may be said to be now gone, gardening without the flowers. The spring gardening was only a partial success, or almost a failure, from the havoc the severe winter made among plants of a herbaceous and annual character, bulbs being also late, and the whole effect patchy and unsatisfactory. The summer bedding has throughout had to struggle for existence. Tender foliaged plants, both dwarf and tall, have been starved out; exotic succulents have been rotted out; and the flowers of Pelargoniums, Calceolarias, Violets, &c., have been washed out. Such is the tale which has generally to be told, especially on retentive soils. In situations where the soil is light and porous, a fair display of flowers may be found, though of a weather beaten and imperfect aspect. Flowering plants of the bedding section, on the whole, have had but a dragged time of it.

If anything has been more satisfactory than another, it is plants of the hardy herbaceous class, whether of the low carpeting character,

as Saxifrages, Sedums, and Antennarias, or of the Funkias, Bamboos, Begonias, and such like. Even the flowering herbaceous plants have all done well, especially those of any sturdiness and substance, such as the Delphiniums, Campanulas, Alstroemerias, and now even the Phloxes and Dahlias. The Spiræas, among flowering shrubs, are making at the present time a fine show, with a great variety in habit of growth and colour of flowers. These, with their herbaceous relations, are really indispensable, and destined to be much more largely planted than hitherto. It is clear therefore that our flower-gardening is entirely dependent on the state of the weather, and that since forecasts of six months cannot yet be achieved, we ought to prepare a due proportion of dull weather as well as sunshiny beds, the former perhaps predominating.

Fortunately there is a growing taste for the interesting as well as for fine gaudy flower-beds, and these may be made both showy and tasteful by a judicious mixture of herbaceous and fine foliaged plants, banding them round with edgings of the summer bedders, or embroidering them with hardy carpeting plants; or more prominence might be given to tall foliaged plants, such as Solanums, Cannas, even hardy Ferns, banded with Pelargoniums, Calceolarias, Lobelias—in short, the usual summer bedders. Many of the hardy herbaceous class of plants have been quite gay this season, and point to the fact that, by planting in rich soil, with attention, abundant watering, and thinning out the shoots as they go out of flower, the season of bloom would be much prolonged. In this way, we think, many might be found to yield throughout the summer months quite as good a show as Pelargoniums, and Lobelias, and, as far as flowers are concerned, superior to the fine foliaged plants which we have just been noting. *Geranium sanguineum* is a plant which has been equal to most bedding plants this season, and might be used with advantage to fill the centres of large beds; it is all the better too, not to have too rich a soil to grow in. Its foliage is of a bright showy green, and the flowers of a brilliant purple red.

For a yellow flowering plant, *Corydalis lutea* has been and is fine. Its foliage alone recommends it, even if it were not so profuse and continuous in flowering. For a blue edging-plant, nothing can approach *Myosotis palustris*. This past season it has been a continuous sheet of the clearest blue since March. Another little plant which is suitable for edgings has been in bloom all the summer viz., *Erodium Reichardi*, quite a carpet-plant, and it is a wonder it has not been used for that purpose before now. These four common herbaceous plants—three of them British—we feel sure would have made this summer quite a showy and lasting bed, planted as noted: the *Geranium* for a centre mass, with the *Corydalis* to follow in a band around it, then the *Myosotis*, and last the white-flowering *Erodium*. These have been under our eye all the summer, flowering in patches, and we feel confident they will not disappoint any one trying them in a bed as indicated. We have no doubt other arrangements would occur to others better acquainted with herbaceous plants. The *Veronicas* contain a large number of tall as well as dwarf-creeping species of fine habit, and showy. Some of the Everlasting Peas are quite gorgeous on heavy rich soil, such as *Lathyrus grandiflorus* and *latifolius*, but especially the last. For large beds they should be allowed to creep over some Spruce or other branches laid over the surface of the bed in the same way as is sometimes done for *Tropæolum* and *Clematis*: they then make a close compact mass, with their flowers elevated above the foliage. We can vouch for their grand effect in the shape of well-established plants, and if growing in deep soil well watered or naturally moist, they last three months in bloom. Pity they are scentless!

Annuals of the hardier sorts have had grand opportunities this year of showing off their colours and characters to advantage. Tender annuals, such as Asters, Zinnias, and Everlastings, have shared the fate of the sub-tropical bedding plants, and have consequently pushed the hardier annuals into prominence showing what is really best and worth growing. There is a richness and variety of colour among annuals which is not approached among any other class of hardy plants, and such a season as the last should arouse cultivators to the claims of the much too neglected annuals of the hardy kinds.—“The Gardener.”

—The bedding system has been discredited by an unfavourable season, and the question will occur to many observers, What will become of it? During the past half-dozen years it has been declining in popular favour, and the introduction of leaf or “carpet” colouring has not tended in any great degree to either its revival or its permanency. In many great places where costly displays have been customary the geometric schemes have been reduced in magnitude by the excision of wings and the conversion of boundary belts into shrubberies, and other contrivances that are easily improvised where needful, but do not always result in the improvement intended. In many instances complete abolition of the parterre would have been in better taste than its restriction, but individual instances are of small consequence in the consideration of the general case and the

future of parterre colouring, which is certainly in a state of transition, and must be considerably influenced by the misfortunes that have made themselves so painfully manifest.

In many instances the bedding display will be displaced by something different, whether better or worse remains to be seen. One thing at least is certain, that for the gratification of the crowd, no less than for the finishing of a picture that is framed by the daily life of its possessor, we have at command an abundance of material. Not only so, but we have material that has never been employed as it might be employed, and, therefore, in addition to material, there is plenty of room for the exercise of invention. We have not seen Phloxes, and Carnations, and Gladioli, and Roses arranged in masses according to the laws of chromatic harmony. In the disposal of rockery and border plants we have not got beyond lines, and lumps, and dots. There has been but little done as yet to combine the stately with the gay in the display of vegetable beauty, but the “sub-tropical” notion went a long way towards the indication of what might be done when the masters, able to do it, should appear, and demonstrate the capabilities of common-place material. The style of decorating we have described as “arborescent” has met with but limited recognition as yet, and often the severe flatness brought about by the use of the shears has made it only a poor kind of carpet bedding when it might have been something better. There is no such great need for flat colouring as the artists appear to think; at all events there is no great gain in manipulating evergreen shrubs so that they look like drawings in coloured chalk that one sees on the London footways. A rich foreground is wanted everywhere, more or less, in every garden; and for the most part flowers are acceptable in almost any form, but a graceful variety is to be much more desired than flatness, repetition, and monotony.—*Gardener's Magazine*.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

The Ceterach as an Edging Plant.—There is a line of this native Fern fringing a rocky border in Mr. Wilson's garden at Llandegai nearly 6 in. high and forming a beautiful and distinct kind of edging. I have never seen it better grown, but what I write to point out is how effective groups of this Fern would be in the rock garden or on a slightly raised rocky border. In Mr. Wilson's garden it is fully exposed to the sun.—V.

Gold-laced Polyanthuses.—I do not consider “A. D.'s” remarks in reference to this matter (p. 285) an answer to what stated (p. 255), although it seems to be intended as one. Judging from what he has asserted, one would think that some of the northern growers had the best Polyanthuses in 1878, whereas it was Mr. Richard Dean, of Ealing, who gained the highest prize; and it was Mr. Dean who was second to me in 1879. I do not use a richer compost for my Polyanthuses than that employed by the northern growers, and they require a 7-in. pot to do what I maintain can be better done in a 5-in. one. Is “A. D.” prepared to say that if I had cut off all the trusses but one from my plants, that the truss remaining would have had more refinement than it had? I quite agree with “Brockhurst” (p. 286) that a mass of Cheshire Favourite is exquisitely beautiful; it is barbarous treatment to cut away masses of beautiful pips and leave only seven. I did not know why they were removed, but must now thank “Brockhurst” for his information on this point. If the schedule of the society says that the number of trusses must be one and the number of pips seven, an exhibitor will be at no loss as to how he should act.—J. DOUGLAS.

Tropæolum speciosum.—This seems to have been a particularly favourable season in this part of the Midlands (Buckinghamshire) for the growth and free flowering of this beautiful Tropæolum. Roots obtained late last autumn, planted in 6-in. pots plunged in a cold frame, and planted out this spring after having made a growth of about 6 in., have been a mass of flower and fine healthy foliage for the last two months, covering a wall to the height of 10 ft. Some roots planted in the ground at the time the others were potted have not done nearly so well; so the small amount of care and protection afforded the potted plants have been well rewarded. We had the roots from the north of Scotland.—J. M., Winstone.

Pink and Crimson China Roses.—These comparatively neglected Roses planted in beds have bloomed continuously throughout the season let the weather be what it might. They are too often allowed to become full of weak wood, whereas they ought to be well thinned out at the winter pruning and some good rotten manure should be forked in about their roots. Thus treated the blooms will be finer and of richer colour than those produced by starved plants. Where Roses are used in large quantities for table decoration these

free flowering varieties are most useful, as the colours of both kinds are bright and pleasing, and the blooms being of medium size are more useful than those that are larger. We find them excellent for forming miniature arches, or for filling baskets formed of green Moss the edging and handle being draped with the foliage and flowers of one kind, and the centre filled up with the blooms of the other. No flower used for table decoration looks better than Roses, and specially the small-flowered common kinds with buds and foliage attached to them. To any one seeking a good continuous flowering subject to fill up beds that too often but poorly repay the trouble and labour bestowed on them, when planted with ordinary bedding plants, I would strongly recommend the old Pink and crimson China Roses, they will be in full bloom both earlier and later in the year than most plants.—J. GROOM, *Linton*.

Aira caryophyllæa.—I have often wondered why this very pretty dwarf glaucous-silvery Grass is not more employed than it is in the various styles of flower gardening at present prevalent. For divisional lines, particularly among dark foliage, it is charming, and it even makes a neat edging for walks. In parks and such places, where belts and masses of shrubs are often spoiled in effect by having an edging of some particular plant; this is a capital plant for the purpose, as it will live anywhere, and is strikingly effective. It is perfectly hardy, and the poorer the soil the more dwarf and silvery the plant becomes. I feel certain that if used along with such plants as the Crimson Beet or the Purple Ajuga, very pretty effects may be produced. No weather seems to affect it, and a few plants may soon be worked up into a thousand. —THOS. WILLIAMS, *Craeklink*.

THE INDOOR GARDEN.

JAPAN AND OTHER CHRYSANTHEMUMS.

Who that remembers what the flowers of these were some twenty or thirty years ago would have imagined that they could have been so greatly improved, and become such objects of beauty as the best among them now are, especially when we consider how shy-seeding they are, and the difficulty there is in raising them in that way? At the time alluded to, they were little thought of; but now almost every city and town has its Chrysanthemum show, and scarcely a garden can be found without Chrysanthemums. Indeed, what we would do without them for the embellishing of greenhouses and conservatories at this season I know not, as they are the veritable "friends in need," coming in at a time when there is little else to cheer and make gay, and lasting till nearly the turn of the year, when forced plants can be had to occupy their places. Not only have our hybridists been busy in improving these now popular flowers, but foreign parts have been ransacked likewise, those introduced from Japan being most noteworthy, and exceedingly showy. Although they are not exactly all that florists can desire, they make a fine display grown as pot plants, and being somewhat loose and irregular in their petals, they are in greater favour with some than those of more symmetrical form and shape. The best and most striking of these are Red Dragon, rich flame colour; Elaine, very fine white; Fair Maid of Guernsey, ditto; Abd-el-Kader, blood-red; James Salter, pink; Cry-Kang, pink and white; Erectum superbum, bright rose; La Negresse, velvety-crimson.

Although Chrysanthemums do not seed freely in our moist climate, so as to admit of raising fresh sorts in that way, they are fortunately somewhat sportive in character, and occasionally send forth blooms of distinct colour; and the branches or shoots that bear these if propagated from, soon afford a stock of the same kind. It was in this way that the varieties named Mrs. Rundle, George Glenn, Bronze Jardin des Plantes, Golden Beverley, and many others originated, which in form and other good qualities are almost the exact counterpart of those from which they sported. These sports among plants are not only interesting in themselves, but are often of great value, and should in all cases be watched closely and taken care of, that they may, if possible, be perpetuated and increased if found deserving. Except in a few places, cultivation has in no way kept pace with the vast improvement that has been made in the flowers, and yet Chrysanthemums will stand as many hardships as most plants, and are even more easy to grow, and are certainly more difficult to kill; in towns they seem to lead a charmed life, as they may frequently be seen covered with soot and dust, and dried up from want of water, and yet somehow or other they struggle through it all, and make attempts to put forth at least a few stray blossoms. That Chrysanthemums may be grown successfully in an impure atmosphere, has been proved again and again by the fine examples to be seen annually in the Temple Gardens, where they are cared for and tended in a way their merits deserve. If they will do so well there, it is proof conclusive that they may be had at least in as good

condition in towns and about the suburbs of other large cities besides London; indeed, they seem specially adapted for such places, and, if only kept clean by good washings overhead, and a liberal supply of water at the roots, they are sure to make ample returns in the fine heads of flower they carry. Bundled up together, and tied something in the way birch brooms are made, they stand very little chance, as all the lower leaves are stifled through want of air and light, and the stems, instead of being strong and short-jointed, are weak and drawn to at least double the length they should be.

Plants of a year old do well for the foreground of shrubbery borders, and when done with for greenhouse decoration they may be used in that way. To start them fairly, dig large holes, so as to cut any stray roots that may have got possession of the ground, and in returning the soil, work in some rotten manure for the Chrysanthemums to feed on. Thus treated, they make a fine display; but, as they bloom late, sunny, sheltered positions should be chosen, or the autumnal winds and rains soon spoil the beauty of the flowers. Where blooms of large size are required for show or other special purposes, the best way is to plant at the foot of a south wall or building, where, when they are showing bloom, they can be protected by placing lights over them, and some canvas or other shelter in front. During their growth each individual branch should be made secure, and, in order to force plenty of strength into them, the plants must be well fed with liberal supplies of sewage or liquid manure, and have the buds thinned out, so as to leave only the central or main ones.

In regard to growing Chrysanthemums for greenhouse or conservatory decoration, it is surprising how much time and labour may be saved by planting them out, and lifting them again in the autumn—a plan that not only succeeds well with Chrysanthemums, but with many other soft-wooded plants. Any piece of open ground, if not near trees, will answer the purpose; but in order to get them of large size, the best way is to prepare shallow trenches for them about a yard apart, and 1 ft. or so wide, and in digging these, to work in a little rotten manure, so that, when finished, they are about 2 in. below the general level—which will afford increased facilities for watering during dry weather, as then it is easy to give them thorough soakings without any loss by the water draining away. Into trenches so formed the plants may, if properly hardened, be turned out by the middle of May, and, if duly attended to afterwards, they will grow at a rapid rate, and form fine bushy specimens by the autumn, when they will be ready for lifting. The proper time to do this is as soon as they have formed buds about the size of small Peas; but it is highly important for the welfare of the plants that a showery time should be chosen for the operation, as then they are less likely to flag or suffer a check by the removal. The best course to pursue to get them up with plenty of roots and a good ball is to give a heavy watering a few days before the work is taken in hand, which will help the soil to keep together; and the portion of this that is not required, or that will not go readily into the sized pots in which it is desired to have the plants, can be worked away by the use of a small fork or sharp pointed stick—in doing which, care should be taken to preserve as many fibres as possible.

In potting, the chief thing is to use a soil that contains plenty of thoroughly decomposed manure of a mild character, such as that from an old hotbed; and in potting, this mixture should be pressed or rammed in quite firmly, immediately watered, and afterwards kept in a thoroughly moist state till the plants go out of bloom. With Chrysanthemums that have proper drainage there is no fear of injury by keeping them too wet, and especially when they have a large head of flowers to carry. The potting complete, the best situation is under the shade of a north wall, where, to keep the leaves fresh, it is necessary that they be syringed two or three times a day till they will stand the dry air without flagging, when, just before the buds expand or frost is expected, they can be moved to the shelter of a cool house. Plants so managed are far preferable to any that can be grown in pots, and they may be had of all sizes by simply propagating at different times, and planting them out up to the middle of July.

S. D.

Climbing Plants in Hothouses.—We have often protested in THE GARDEN against the very common fashion of mutilating the few climbing plants growing in the open air by tacking them against walls, and continually cutting them, the result being that it is only by accident one sees a hardy climbing plant showing anything like its natural beauty. The same miserable system obtains indoors—everything must be tied to a beam or a pillar and trimmed with regularity. The opposite system is the best one; to let the plants "abandon" themselves to the most graceful and irregular trailings that they are capable of, preventing them, of course, from unduly encroaching on other things. Attached they must, of necessity, frequently be to a slender arch or beam, but that effected, the rest is quite easy. The Allamandas, now in flower in many houses, are frequently tied trimly; but at Eaton Hall their great flower-laden

shoots are allowed to hang as freely from the arches as in their native woods, and the effect is beautiful.

TRAINING AND TYING PLANTS.

As the time of the year is now at hand when the greater portion of pot-grown plants are tied and put into the shape they are intended to have when in flower, a few words on the matter may not be out of place. It is a subject that from time to time comes in for discussion, particularly as relates to the way some plants that make their appearance at horticultural exhibitions are trained. It may with truth be said that tying at all is a necessary evil, admissible for the simple reason that with the majority of plants grown in pots, and which are likewise by necessity cultivated under glass, the effect is to induce a weaker condition of the shoots and branches to an extent that necessitates support in some way; and it will not need much reflection, even on the part of those who are not conversant with horticultural matters, to perceive that the amount of support they thus require will be proportionate to the purpose they are wanted for. Little fault, I presume, can be found with such training and tying being carried out with any plant grown under the conditions above considered, as is found requisite to keep it in the shape or form it assumes when in a state of Nature. This, of course, refers to those subjects that are more or less of a bushy habit. In the case of climbing or twining plants, the necessity for training them in a form very different from that which they take when growing in their native habitats is obvious, if they are grown at all, except as roof climbers, or in some way akin that admits of their being supported in a manner to a certain extent in accordance with their natural habit. When plants are only wanted for home decoration, all the training they require or should have is enough to keep them in shape, and to support their branches so far as need be in whatever situations they may be destined to do duty, such as when removed from the houses or pits in which they are grown to conservatories, halls, corridors, rooms, &c. But with plants that are grown with the intention of being exhibited, which necessitates their being conveyed a greater or less distance, and subjected to the shaking unavoidable in a wheeled vehicle, even when only to be moved a short distance, it becomes requisite to secure all their branches sufficiently to keep them in their proper places, and to prevent the flowers, and with some subjects the leaves as well, chafing. The extent to which this is necessary is seldom apparent to those who have not been absolutely engaged in the work. I have often seen plants that had not to be conveyed more than a portion of a mile to the place of exhibition, in such a state when they reached that no one would have cared to own them or to have used them for any decorative purpose; and yet before they were moved they did not seem to need more tying than they had received. So far as flowering plants are concerned, it should not be forgotten that comparatively few admit of being used for exhibition, or would produce the effect required, that are not naturally of a bushy compact shape, the reverse of what is usually accepted as elegant in their collective outline. This I mention by reason of the objection we frequently hear raised to what is termed the dumpy appearance of many blooming subjects shown, but which in reality are very little different in general outline from what they would be found out-of-doors in their native country. In defending the practice of training and tying, so far as it thus becomes an absolute necessity, I have done and still cannot speak too strongly against the unnecessary and equally unnatural distortion of the shoots often inflicted, where the point of every branch that holds its head a little higher than the rest is bent and tied down, so as to present an even surface, as much as if they had been clipped over with a pair of shears. This is frequently done with Heaths, and is not at all needed, as most of them naturally grow as regular in their outline as a Rhododendron bush. The same holds good with almost the whole of the hard-wooded greenhouse plants that are generally cultivated in pots.

In the case of twining or climbing plants, that must, when to be used in this way, be trained on trellises of some kind, instead of the flowers being as often tied down close in with the leaves, the points of the shoots from which they proceed, or the foot-stalks which bear them, should be allowed to stand out or hang away loosely from the leaf-covered trellis, in which way the undue formality will be avoided, instead of being, as they are now frequently seen, the whole plant as stiff and uninteresting as a Cabbage devoid of its outer leaves. But the worst examples of training are to be met with amongst Chrysanthemums and zonal Pelargoniums, as these have for some years been managed for exhibition tied down on almost flat circular wire trellises only a few inches above the pots—whereon every shoot, and often the flower-stalks as well, are twisted and distorted so as to present an even surface of bloom, giving to each

specimen much the appearance of a gigantic overgrown Mushroom. Whatever can be said in favour of this system of tying as a means by which to bring the whole of the flowers most prominently before the eye, it nevertheless makes the tortured plants look so objectionably unnatural as to be intolerable to every one not oblivious of the fact that every plant, even under the altered conditions consequent upon artificial cultivation, should be allowed to exhibit as much of its natural habit as is consistent with the general effect which it is intended to produce.

Pyramidal-shaped trellises are frequently used for training Azaleas on, and, although less objectionable than the flat monstrosities employed for the Pelargoniums and Chrysanthemums, still, the plants so managed have such a formal, rigid appearance that, however profusely flowered they may be, they are painful to look upon. In fact, the use of trellises at all should never be tolerated unless in the case of such plants as already alluded to that do not well admit of being supported by other means. There can be no question that the stiff, unnatural contour exhibited in these overtrained plants has done much to lower horticultural exhibitions in the eyes of the many who are fond of gardening and willing to countenance as much of the artificial in the cultivation of the different subjects taken in hand as cannot for the purpose required be done without, but nothing more. There are those, I am aware, who eschew the idea of all training and tying completely, beyond perhaps the support afforded by a single stake or two even in the case of pot-grown plants; but this is the opposite extreme, and is simply impracticable, unless we are to return to the cultivation in practice a generation ago, when the wretched etiolated examples of by far the greater number of subjects grown under glass merely existed in name, and were more calculated to exemplify the tenacity of vegetable life under conditions of starvation than to illustrate what can be done by a close study of their requirements and equal attention to their wants.

In regard to growing plants especially intended for exhibition, the primary object should be to produce them in a condition that will bear evidence of the highest standard attainable of healthy vigour, which, with those cultivated for their bloom, will be evidenced by the greatest profusion of fully-developed, highly-coloured flowers. There will, I think, be no question that in the description of plants mentioned this should take precedence of the graceful elegance required, and also desirable, but usually present to a greater extent in plants of a different character, and which, in the case of these latter, the cultivator should make it his chief aim to display. Assuming that this is a common-sense view of the subject, it becomes evident that, in cultivating plants for exhibition, the training and tying requisite are such as best calculated to show the properties the different subjects are grown for. This will be found to lie in a medium position between the handiwork of those who over-tie and those who deprecate any tying at all. It may be well to remind those who entertain this latter view that horticultural exhibitions, to effect the object they are professedly organised to serve, must continue to shape their course so as to illustrate and encourage individual excellence in the cultivation of the different subjects invited to compete, rather than bring together an assemblage of indifferently grown plants that, however well adapted to form a pleasing and artistic combination collectively, have an adverse effect to the promoting of that high standard which has made the cultivation of plants in this country justly famous. I have thus attempted to draw the line in this often-discussed question of plant-tying in a way that avoids the intolerable formality so often met with and yet leaves the cultivator the requisite scope for showing to the best advantage the healthy development that it is possible to impart to plants grown under conditions by necessity artificial in the highest degree.

T. BAINES.

New Fire-place Jardinière.—This, the invention of Messrs. Barnard, Bishop, & Barnards' of Norwich, consists of an ornamental cast-iron box provided with hooks suitable for attaching it to the bars of the Slow Combustion Stoves made by that firm. It is light and portable, and when arranged with flowers forms, as will be seen by the annexed illustration, a striking contrast to the hitherto unartistic arrangements resorted to for decorating stoves when not in use. Being made with that neatness and taste which characterises all Messrs. Barnard & Bishop's manufactures, it cannot fail to answer the purpose for which it is intended.

Rough Plate Glass.—I find that there is a general opinion among gardeners that this is a mistake. It does not quite do for shading in the summer-time, and it prevents the free admission of all the light wanted in winter.—B.

Sweet Peas in Window Boxes.—We have noticed a pretty use of these in which the plants are allowed to hang downwards from the box in windows. Would it not be a good plan to sometimes change the occupants of window boxes?

ORCHIDS UNDER COOL TREATMENT.

As the result of a little practical experience may be useful I send a few observations respecting the behaviour of cool Orchids here last winter both in a cool house and in a house altogether unheated by artificial means. I am the more anxious to furnish my testimony in favour of cool treatment when I consider that although almost all of the Orchids to which I shall allude were known to botanists for many years, and had been frequently imported in quantity, it was not until cool treatment was practised that they were seen in anything like good condition. So bad were they indeed under the old system that when they were imported in later years and grown to perfection in cool houses many of them were regarded as new plants, not being even recognised by those who had had examples of them in their care for years. I, myself, who was among the first to note the improvement which took place in such plants as *Odontoglossum* when placed in a cool airy house often think of the poor shrivelled specimens which I had 20 years ago in the so-called Mexican house, and wonder that tradition should have so long blinded me to their wants. I think, therefore, it is of the highest importance that it should be distinctly understood that notwithstanding their ability to withstand a high temperature for a time, owing to the ease with which they almost immediately start afresh after having completed one growth (a peculiarity which alone saves them), a high temperature is neither necessary nor beneficial. Excessive heat is not an assistance to plants to which it is not natural, neither in hastening nor improving the growth; as the result of careful observation I am prepared to say that the pseudo-bulbs of *Odontoglossum* are formed as quickly in a temperature of 55° as they are in one of 75°, while in the cooler temperature the leaves are shorter. All of us who have had the handling of Orchids for a number of years are aware that almost any Orchid if taken at the right time, *i. e.*, just as it starts into growth, will stand great heat; but in giving it the greatest watchfulness is necessary in order to keep the plants well supplied with water, and in moving them to a cooler place as soon as they have finished their growth—attentions altogether beyond the reach of what have now become a large class of Orchid lovers; *i. e.*, those who cultivate a few Orchids themselves with the best means which they have at command. For a long time this class of cultivators were debarred from the pleasure of growing Orchids, thinking that they all require great heat; but now that we have found a section that will stand cold, and which are to my knowledge embellishing many a cool greenhouse, let us not replace them in the old, and to many objectionable, stovehouse.

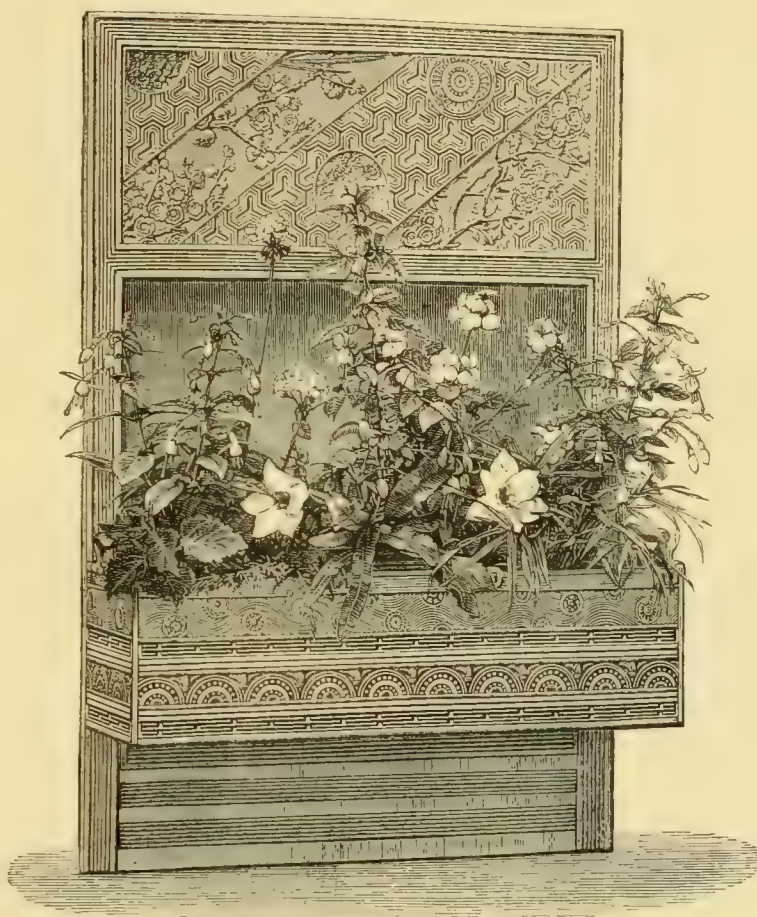
I am aware that many good cultivators of *Odontoglossum* and *Masdevallias* give their plants much more heat than others, and to those who give heat and yet grow their plants well, I say continue to do so; but to publicly advocate the maintenance of a high temperature to plants which will thrive well in a cool house is a dangerous thing to do. I have known houses in the same establishment in one of which Orchids would thrive in a high temperature, and in another, into

which the same plants had been put and subjected to the same temperature, they would not, but when subjected to cool treatment they succeeded in each house equally well. Cool treatment, therefore, in this case is the proper treatment to advocate, and it suits small growers, who derive as much pleasure from their collections when in thriving condition as the possessors of large collections do from theirs.

Let those who have appliances and experience (particularly experience in their own houses) grow their plants as they find them do best. For my part I practise what I preach, and, while I can show one of the healthiest and most vigorous houses of cool Orchids one would wish to see, on which insect of any kind has never been (except an occasional and inevitable green fly), I can point to more than one collection grown on the other system which are in anything but a happy condition. It is pretty well known that I place the minimum night or day temperature at 45° Fahr., and I am happy to

be able to say, from my experience of last winter, that no harm will take place if the house gets as low as 40° (provided the plants have been previously kept cool); indeed, my cool house last winter, when I went in at night, was frequently down to 37°, and it would have rather startled some growers to see fine *Pleiones* on a shelf with their naturally withering leaves frozen against the glass in ice about $\frac{1}{4}$ in. thick; those plants are now in very fine condition, showing well for flower. From this fact, and from experimenting in the house without a heating apparatus, in which *P. maculata* and *P. humilis* wintered fairly well after being subjected to from 5° to 14° of frost for weeks, I am sure that we cannot put the loss of the many cartloads of these plants imported down to cool treatment; I feel certain that they would pass the winter far better in a cold frame on a raised stage and covered lightly with about 3 in. of very dry Moss than they would in the heat to which they are generally subjected. In the cool house which ranged from 5° to 37° (4 number) to 55° were over 500 plants of *Odontoglossum crispum* (*Alexandrae*) and *Pescatorei*, 300 *Halli* and others of the *O. luteo-purpureum* section

500 *O. cirrhosum*, *O. naevium*, *O. gloriosum*, *O. odoratum*, and others of that section; some hundreds of *Masdevallias*, and more or less in quantity *O. pardinum*, *O. nebulosum*, *O. maculatum*, *O. madrense*, and indeed some of almost all of the *Odontoglossum*s and *Oncidium*s said to like cool treatment, notably *Oncidium macranthum*, *O. Phalenopsis*, *O. cucullatum*, and *O. tigrinum*, which did remarkably well; *Celoglyne ocellata*, *C. barbata*, *Cymbidium eburneum*, *C. Mastersi* (these are now showing flower), *Epidendrum syringæthyrsum*, *E. erubescens*, *E. vitellinum majus*, *Lælia majalis*, *L. autumnalis*, *L. anceps*, *L. furfuracea*, *Mesospinidium vulcanicum*, *M. sanguineum*, *Dendrobium Falconeri*, *Maxillaria grandiflora*, *M. venusta*, &c. Far from being injured all these and many others continued in the most robust health, their pseudo-bulbs swelling and shining and the *Sphagnum* growing until it was beautiful in itself, the only precaution taken to ensure such a happy state of things being to take care and not have much water about, particularly in the afternoon. These plants have now a mass of roots; so well rooted are they that



Fire-place Jardinière.

one may lift them up by the leaves without disturbing them, and many of them are now in flower. I shall be glad to show them to anyone interested in cool treatment, and who can spare an hour to inspect them. I may add that I never allow our cool Orchids to be syringed or watered over the foliage at any time.

In the first week in May, or as soon afterwards as the season will permit, it is my rule to have the coolest Orchids placed in a north house in which there is no heating appliance of any kind, and there they remain until the first week in September, when they are moved to a heated cool house for the winter. On removing the bulk of them last September it occurred to me to leave one of each kind in their cold quarters throughout the winter, in order to test their powers of endurance. All went well up to the time when the thermometers inside registered 2° of frost, and I verily believe that the whole of the plants experimented on would have passed a short period at that temperature in fair condition. At from 2° to 5° of frost first went *Mesospinidium sanguineum*, then *Odontoglossum Lindleyanum*, followed by *O. cirrhosum*. At from 5° to 7° of frost *O. Halli*, *O. roseum*, *O. gloriosum*, *Masdevallia Harryana*, passed away in the order in which they are named, soon followed by *Odontoglossum Pescatorei*, and *O. Alexandræ*; and I was pleased to note that these two last, which were the most beautiful, were the hardest of the New Granada *Odontoglossums*, and really seemed at one time likely to pass the winter in a living state. What surprised me most was the extraordinary hardness of the Mexican Orchids, *Lælias*, *Odontoglossums*, &c., which, notwithstanding that the thermometers inside the house on one occasion (on Christmas eve I think) registered 14° of frost, all passed the winter alive, but most of them dropped off one at a time during the summer. Singularly enough, two of the most frail looking are the only *Odontoglossums* left alive, viz., *O. Rossi* and *O. Cervantesi*, and these are in a healthy condition and growing well; they were small plants when the winter commenced and they have only lost two or three old pseudobulbs each. *Dendrobium moniliforme* (japonicum) is in as good condition as those in the cool house, and *Calanthe Sieboldi* and that bought as *C. japonica* is in a much more vigorous state than those left in the cool house and evidently consider they have been properly treated. *Pleione humilis* and *P. maculata* are living and sufficiently well to prove that they can never be stove plants. Knowing that they did not require heat, two-thirds of the bulk of *Disa grandiflora* were left in the unheated house, and the result was that they passed the winter in from 5° to 14° degrees of frost, frozen for weeks as hard as frost could make them, in better condition than those in a cool-heated house, and flowered beautifully; so satisfactory indeed was the experiment that I shall never again feel justified in placing these plants in heat while I have a quiet sheltered unheated house in which to put them. These results will, I think, warrant my saying that Orchids of the classes just named do not require much heat, they cannot be grown in heat, in fact, unless in houses exceptionally well adapted to their wants, and by experienced growers, these I leave to themselves, I write only to those who love Orchids and have but little or no experience in their culture. *Odontoglossum vexillarium*, *O. Roezli*, *O. Phalaenopsis* I always keep in the intermediate house.

Pine-apple Nursery, Manila Val.

JAMES O'BRIEN.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

The Fuchsia-like Begonia Round an Arch.—This well known *Begonia* is planted on each side of a large arch in the great glass covered corridor in the gardens at Eaton Hall. The two plants meet above the span of the arch, which is 10 ft. high, covering the whole beautifully and producing a remarkably pretty effect.

Jasminum Sambac.—It is so seldom that one sees a stove Jasmine well-grown that we had the greater pleasure in noting a vigorous specimen of this in the warm house at Eaton Hall planted out in a bed of earth on the raised pit of a lean-to house. Mr. Selwood tells us that it bears racemes of flowers nearly 18 in. long, and it is as free in growth as a Privet.

Carnation La Belle.—I was pleased to see in THE GARDEN a short time ago a note on this the most useful of all white Carnations. When at Croome Court the other day I saw some plants of it trained on an iron rod, over the pathway of a light span-roofed greenhouse, doing well. They had been in the same pots two years, and blooms could be cut from them every day in the year. They are useful for making button-hole bouquets, and I would recommend everyone to grow this *Carnation* wherever white flowers are in demand.—J. C. F.

Salvia splendens.—This useful autumn-flowering plant will now be coming into bloom, and, being rather tender, should be at once moved under glass. The brilliant colour of its blossoms makes it an

excellent plant in conservatories and other plant houses during the duller months of the year. If kept in an intermediate temperature and well supplied with weak liquid manure, it will continue to produce a succession of flower for a long period. Mixed with *Chrysanthemums* it produces a striking effect, and, being very easily grown, it should be included in even the most limited collections.—J. GROOM.

Todea superba.—Many cultivators of Ferns are deterred from growing the beautiful Filmy Ferns under the impression that they require to be grown in air-tight compartments. I have some healthy specimens intermixed with ordinary Ferns in a house with a north aspect that has had both doors and windows open whole weeks together, and yet they are as healthy and vigorous as need be.—J. GROOM, Linton.

TREES, SHRUBS, AND WOODLANDS.

WOODLAND WORK FOR OCTOBER.

FINISH pitting and other preparations of the land for late planting, and clear up arrears of ditching, hedge-brushing, and the erections, repairs, and painting of wood and wire fencing; also cart all road and fencing materials and remove timber from the rides wherever such is left. While dry-weather continues tree-washing may proceed; fences intended to be game-proof around nurseries and young plantations may also be examined and repaired. Stake and tie trees and tread or well ram up the soil around large and early transplants. But the principal work of the month should be planting; and to prevent a recurrence of the casualties of last winter this should be got in hand early. Where the trees are obtained direct from the home nursery they may be raised and replanted the same day, and if the work is carefully done and the soil dry and warm, they will feel the change very little. In order to preserve the roots uninjured the first row to be raised should have a good deep trench thrown out alongside it, sufficiently deep to undermine the roots, and this operation should be continued for every succeeding row. There should be no violent pulling at the stem and no chopping of roots with the spade; but every part of the work should be conducted with care and deliberation.

The tools required for raising and planting are simple, but they should be handy in size and of the best materials. The following will be found useful: A small three-pronged fork, light enough to be used with one hand, for lifting seedlings; a larger fork for trenching alongside the rows and opening out the plants; a light handy spade for notching and for refilling the holes with soil; a dibble or planting iron for opening up the ground which has already been notched for the reception of the plants; a pick and mottock, which may be combined in one implement, for use in stony or upon very hard ground.

In notch planting with small subjects, and upon very thin and light soils, a marker precedes the planter, and with a cross cut of his spade indicates the position of the tree. The planter afterwards drives his iron into the ground at one extremity of an arm of the cross-cut, presses down the handle, and thus opens the slit at the centre, into which the carrier pushes a plant, and the ground is afterwards closed by the foot. In this way from 1200 to 1500 small trees may be planted in a day by an active man and a boy. Wherever large plants are pitted in prepared holes, care should be taken to put them very little, if any, deeper than they stood in the lines of the nursery; and while the soil is being filled in, the holder should by a slight vertical motion of the plant settle the soil well under the roots and scatter these regularly throughout the soil. Where the soil is light and dry some treading may be necessary to steady the tree in its new quarters; but wet soils are best untrodden at the time of planting, though they may be subsequently rammed down and consolidated in dry weather. The collection of tree seeds will demand attention during the present month. Among the first trees to drop their seeds are the Norway Maple, the Walnut, the Birch, and the Sycamore; then follow the Alder, the Ash, Beech, the Chestnut, and the Oak. Where any of these are intended for planting during the coming season they should be put into the ground as soon as they fall; for unless they are properly harvested or sufficiently dried without artificial means being resorted to, few seeds afterwards germinate freely. None of them will keep well in boxes or bags, though they may be spread out to dry and kept well turned, or stowed away in dry earth, sand, or sawdust. A good loam is suitable for planting out Acorns and Chestnuts, and almost any deep and well-tilled soil will do for the Ash-keys.

Make and plant out cuttings of various kinds—Dogwood, Ribes, Portugal and common Laurel, Alder, Lime, Poplar, Plane, Willow, and Elder; also layer Maples, Elms, Limes, Rhododendrons, &c. Mark all trees for cutting down in mixed and ornamental planta-

tions, that the work may be commenced next month. Collect Hips, Haws, Yew and Holly berries, and commit them at once to the rot-heap. Dibble Acorns into all vacant spaces in Oak plantations, having first lightly pared off the surface and well stirred the soil.

Land recently cleared of timber and intended to be replanted, may at once receive a good trenching, so that all roots and remains of the former crop may be burnt up or cleared off. Nothing proves so injurious to the roots of young trees as old wood left to decay in the soil. As the nursery plots become cleared, have them well dressed with lime or compost, and roughly dug in preparation for the next crop of trees or vegetables. Strong layers may now be removed from the stools and planted out, and the stools dressed preparatory to future layering. Strong plants of Ash, Oak, and Chestnut, which will not go out for another year, may be undercut in the lines. October is a good time for planting young Hawthorn hedges upon fairly dry soils. Three or four years' old plants which have been twice transplanted, may be put in triangularly in a double row, and afterwards cut down tolerably close to the ground. By allowing these to grow freely for the first two years, and then trimming them back to within a foot of the ground, and afterwards switching the hedge once a year, leaving each time an additional 6 in. of growth at the top, and about 2 in. or 3 in. on each side, a strong and impenetrable fence may be obtained in about seven years from the time of planting.

A. J. BURROWS.

THE SCARLET BERRIED ELDER.

(SAMBUS RACEMOSA).

THIS fine shrub should be seen in its native habitat in order to form a correct idea of its decorative merits. Though it is met with growing freely in both British and Continental gardens, it rarely produces its clusters of fruit in such quantity as it does in a wild state. It is a true Alpine shrub, occurring frequently at an altitude of 4000 ft. to 5000 ft. on the Bernese Alps, where during the months of August and September—its fruiting season—it forms an object of great beauty. On the steep slopes of the Brunig Pass, and along the route from the lake of Brienz to the lake of Sarnen, at this season it keeps up a continuous display, and has the appearance in the distance of well-berried specimens of the Mountain Ash. It varies considerably according to the amount of nourishment which it receives; where the soil is poor, consisting for the most part of disintegrated rock and sand, the foliage is scanty and light coloured, and it bears small globular clusters of fruit; but where there is more fertility the foliage is luxuriant, and the clusters of fruit resemble miniature bunches of Grapes, measuring from 4 in. to 6 in. in length, with berries of a bright scarlet. It forms a large bush some 10 ft. to 12 ft. high, and about as much through with numerous arching branches, bending to the ground at the extremities, from which arise a number of erect ones, which in turn bend downwards as their laterals assume the erect position. The leaves have from five to seven elliptic-acuminate serrated leaflets, which when the plant is in a vigorous state are bluish-green above, and light glaucous green beneath. The flowers are greenish-white, and are borne in erect terminal and lateral racemes, which as the berries enlarge become pendulous. It differs from the common Elder in having a smooth dark bark with few fissures, in its more shrubby habit, narrower leaflets, racemose flowers, and scarlet fruit. It seems to thrive best when growing in a rich moist soil upon a rocky subsoil, and probably if the conditions under which it is found in its native habitat could be successfully imitated, it would become quite as effective an ornament in our gardens.

C. M.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Euonymus radicans variegatus as a Wall Plant.—This plant covers a wall 12 ft. high in the gardens of Penrhyn Castle with its silvery foliage and shoots which cling to the wall like those of the Ivy, and yet it is only a short time since we knew it only as a dwarf trailing plant.

A Distinct Hardy Shrub (*Diplopappus chrysophyllus*).—We noticed a considerable stock of this very curious and beautiful shrub in Messrs. Francis and Arthur Dickson's nursery at Chester, in which it has proved quite hardy. It belongs to the natural Order of Composites. All its branchlets, as well as the undersides of the small leaves, are covered with a golden dust or powder, somewhat like a golden Fern. It is a very desirable and distinct plant.

The Oak Leaved Hydrangea.—This is only occasionally seen, and regarded partly as a curiosity, but it really is a fine shrub. A very large specimen of it now in the gardens at Rhianva has many of its leaves a claret red, and of various shades. It is also in bloom, and in all ways is a remarkable shrub. In the same garden a specimen

of the *Hydrangea* with all the central florets perfect is very handsome, and in charming contrast to the ordinary form in which all the flowers are monstrous. In the perfect flowered form the heads are blue and pink, and that often on the same bush. How is it that this beautiful form is so seldom seen?

The Out Leaved Elder.—Is this shrub enough grown? I passed a specimen of it the other day, which I mistook at first for a very fine specimen of the Japanese Maple, but Japanese Maples very rarely attain such a stature.—V.

Rhododendron virgatum.—This *Rhododendron* stands quite alone with respect to its early-flowering tendency. A large proportion of a batch of seedlings, only two years old, have bloomed freely this spring. It is a charming species, and one which should be useful for purposes of hybridisation.—T. SMITH, *Newry*.

Solanum crispum.—There are two shrubs bearing this name, at least in some places: one a dull purplish colour, and very inferior to the handsome blue bush we have mentioned as so beautiful at Glasnevin. The last winter and spring injured it, but a short time suffices to establish other strong plants.

Fraxinus concavifolia variegata.—This deserves a passing word of praise. The tree is somewhat upright in habit, and its growing points are always variegated with white, making it look in the distance as if it were covered with white flowers.—T. SMITH.

St. John's-wort an Enemy to Trees.—An undergrowth of St. John's-wort has caused the death of a variety of well-grown trees at Penrhyn Castle. It is such a vigorous and constant grower that all the moisture needed by the trees goes to the *Hypericum*.

Eurybia gummosa.—On a wall this has proved to be quite hardy, and it has been completely covered with pretty white Aster-like flowers, which are also delicately scented. The specimen in question is about 4 ft. by 3 ft., and when in blossom it was very conspicuous.—T. SMITH, *Newry*.

Spiræa japonica in the Wild Garden.—Mr. Ellam planted out some spare stock of this in a wood at Bodorgan, and with the happiest effect. The plant grows and flowers freely, the flowers appearing a fortnight later in the moist cool wood than on plants of the same kind on a north garden border; therefore they prolong the season of this favourite flower. They are planted in an irregular group, as such things should generally be, the effect being much better than that obtained by the common dotting plan.

Draining Bog Land by Planting.—The following is a successful and profitable method of effectually draining bog land: Upwards of forty years ago Mr. Murray, then land agent to the Earl of Jersey, planted a bog near the Button Ferry Station, South Wales. This bog was quite useless and even dangerous, as people often lost their cattle in its wet quagmires. Mr. Murray planted it with Black Italian Poplar, which we supplied, and the trees made such extraordinary growth that at the end of fifteen years, when they were cut down, the produce realised something like £13 per annum per acre for the whole period of fifteen years during which the crop had occupied the ground; it luckily happening that the poles were just wanted in the neighbouring copper works. However, this was not all the benefit or profit derived from planting the bog with these rapid-growing trees. Their strong roots running through the underlying clay thoroughly drained the bog, letting off the water in a way that no other process of draining could accomplish. Beneath all bogs, which are formed of decomposing vegetation, there lies a bed of clay, and below that comes a bed of gravel. The strong roots of the Poplar will run down through the soft bog to a depth of many feet, and pierce through the bed of clay some feet thick into the gravel. In these days of great demand for packing cases, &c., the wood of this Poplar is very valuable, and the tree has the additional property of arriving at a fit state to be cut down in a man's lifetime. When the timber was removed, a charge of gunpowder was inserted in each stool, which effectually burst them up and rendered their removal easy. After the ground was cleared, a beautiful rich, firm pasture remained.

—WM. MAULE & SONS in "Journal of Forestry."

Canadian Forests.—The soil of the eastern townships is very fertile and susceptible of the highest degree of cultivation. The features of the country are rolling, having the appearance when viewed from an elevation of an upheaval of an immense wave suddenly stilled; and these slopes and valleys, before they were cleared, were covered with a luxuriant growth of those kinds of forests which in America are known as a sign of naturally drained soil and great fertility. There are many kinds of wood found in the eastern townships forests. Among these the following may be enumerated: Maple (hard and soft), Birch, Elm, Ash, Spruce, Bass wood, Butternut, Hickory, Cedar, &c. It is also to be noticed that contiguous to these woods are numerous water powers which may be utilised in manufactures. The country is literally intersected with streams and rivulets, the waters of which are cold and clear and the home of

the red trout. In the north-west territory of the province of Manitoba nearly the whole of the fences are composed of posts of Spruce and Poplar, the latter of which, with the bark removed, will last twenty years. Pine and Bass wood lumber are also used, the former ranging from 20 dols. to 60 dols. per 1000 ft. Poplar and Oak are in sufficient quantity to supply the present demand, but I fear there is not enough to supply a very large population, in which case there might be a scarcity of hard wood, but plenty of Poplar and Tamarac, the former of which is reproduced very rapidly. Coal is not known to exist in the province of Manitoba, but is said to be found about thirty miles west of the boundary of the province. In the Peace River country five-sixths of the timber is Poplar. Balsam Poplar is very abundant on the islands in all the north-western rivers, often attaining a diameter of from 6 ft. to 10 ft. White Spruce grows to a very large size on all the watersheds and the slopes of the south bank of the Peace River, on islands in all the rivers, and very abundantly on the low lands at the west end of Lake Athabasca. I have often seen it over 3 ft. in diameter, but the usual size is from 1 ft. to 2 ft. White Birch is not abundant along the Peace River, but is common on the Athabasca and Mackenzie Rivers. The Northern Indians make large quantities of syrup from its sap in spring.—A. J. B.

Effect of the Late Season on Forest Trees.—Enough has been already said about the deficiencies of almost every kind of autumn fruit, but I have seen little reference to forest trees. Here, near the sea coast in Cornwall, I observe that the foliage is fairly good on Ash, Beech, Elms of several sorts, Horse Chestnuts, and Lime; whilst it is very small and stunted on English and Turkish Oak, Spanish Chestnut, Plane, Poplars (various), Alder and Walnut. Scarcely any Acorns are to be seen even on young and vigorous Oaks, and where they occur, they are so small, that fifty Acorns in their cups, freshly picked from a healthy Oak of about thirty years' growth in a sheltered and sunny situation, (pedunculate?) weigh less than one ounce and a half; whilst the largest I can find among 300 Acorns is only $\frac{3}{4}$ in. in length with its cup. All Conifers seem to have suffered also, though in a less degree. The season of 1784 seems to have been very similar, for I find Dr. Johnson thus complaining to a friend, in a letter dated August 26, 1784; "Is not this strange weather? Winter absorbed the spring, and now autumn is come before we have had summer. But let not our kindness for each other imitate the inconstancy of the seasons."—J. J. R., *Penrose, Hilston*.

Suitable Trees for Smoky Climates.—In parts of the country where most kinds of trees are perishing from the effects of smoke and deleterious gases given forth by the factories, there are two species of trees that seem absolutely unaffected by them, and these are the Sycamore and the Spanish Chestnut. At one place near Sheffield, where there are extensive manufactories of coal and iron works all round, most of the trees are either dead or dying, especially the Oaks and Firs, but not the Sycamores. Within the last twelve years a group of these trees has sprung up naturally where other species are dying, and have grown quickly to the size of trees, and are thriving amazingly, visibly laying wood on the trunk every year. And it is the same all over. Seedlings spring up everywhere, and have to be extirpated in places where they would do injury by crowding other things out. The Spanish Chestnut is just about, if not quite, as vigorous as the Sycamore, and trees perhaps 100 years of age, or a little under, do not show a dead twig, while young ones soon grow up and ornament the landscape. Of the value of these two trees for timber I cannot say much, but I suppose they are both extensively enough used to pay for their culture in places where more valuable trees will not thrive, and they have the advantage of being rapid growers and coming early to timber size. Another tree which may be observed springing up naturally, and in great abundance, where the Oaks have perished, is the Birch. In some tracts in the woods here the Birch bushes form quite a thicket, and look healthy and growing, though exposed to the same influences that are killing or injuring their neighbours. While speaking on this subject, it may not be inapt to remark that one of the worst features of English woodcraft is the leaving of so much dead and dying timber standing, while cutting down trees annually for sale which are healthy, and the removal of which is not urgent. On plenty of estates the quantity of timber left to decay of its own accord is quite prodigious, and it never seems to occur to the woodman to cut it down and turn it to account while he may, unless it be such as happens to be included in the "annual felling" on some portion of the estate. Crowding of old but healthy trees is another evil. Sometimes they are left to stand through the aversion of the owner to their being cut down, but often they are left through neglect. Thousands of pounds worth of good timber might be removed from estates where it would never be missed, and at the same time greatly relieve the trees that were left by giving them more room and light.—C.

PLATE CC.

RHODODENDRON KATE WATERER.

Drawn by MRS. DUFFIELD.

THIS variety, which was raised at Bagshot by Mr. John Waterer is certainly one of the most beautiful and distinct Rhododendrons which have been introduced for some time. It possesses, as will be seen, fine foliage, is of good habit, free flowering, and thoroughly hardy, qualities which render it most desirable in any situation in which it may be placed. It is the custom at Bagshot to cross all the best kinds, collecting the seeds indiscriminately, and sowing all together, therefore it is impossible to say with certainty from what source this variety originated. Its colour is distinct and bright, and the spotted yellow blotch sets off the flowers to increased advantage. The following excellent Rhododendrons have also been raised within the last few years by Mr. John Waterer, viz., *Duchess of Bedford*, *Lady Tankerville*, *Bai Waterer*, *Mrs. Arthur Walter*, *Baron Schröder*, *B. W. Currie*, *John Walter*, *W. E. Gladstone*, and *Jack Waterer*, all kinds worthy of being added to any collection.

DOUBLE AND SINGLE FLOWERS.

BOTANISTS put little value on double flowers, however attractive in appearance they may be, looking upon them as simply abortions, and in this they are consistent, for their estimate is taken from a natural stand-point, double flowers being merely the result of high cultivation, which, when continued through successive generations of plants raised from seed, often results in the flowers undergoing a transformation in the organs of reproduction. On the other hand, this condition in plants is looked on by florists very differently. With them the majority of double flowers are held to be improvements, coming nearer to the standard which they, the florists, have set up, and which has generally, even outside their body, been accepted. Again, the duration, that is, the time a flower will last, is a matter worth taking into account, by the majority of cultivators, as there is no doubt that double flowers possess the advantage of lasting considerably longer before they fall than such as are in a natural state. Yet the subject presents itself in another light. The greater number of flowers when they become double lose much of their simple beauty and elegance. Take, for instance, the double-flowered Anemones, Fuchsias, Pelargoniums, and Petunias, and the last to make their appearance, double Begonias, in all of these the eye has not become so used to see the double forms alone as to lead people to forget the attractions of the flowers in their single state. Even Roses that we have been so long accustomed to see held in estimation proportionate to the extent of the doubleness of their flowers, no one can hold that from a purely artistic view these are nearly so beautiful as the flowers that are much more single. The looser-flowered Tea varieties, for example, although a further amplification of their petals would perhaps improve them for exhibition purposes, yet it would have a contrary effect as flowers for the many. These views were further impressed upon me from a sight of the beautiful single Dahlias that have within the last year or two been brought under notice, after being all but lost sight of except with the comparatively few individuals who look upon the merits of a flower apart from the fashion of the time being. So far from the cultivation of plants, when carried in the direction of producing their flowers in a double state being a desirable consummation, I look upon it, with few exceptions, as a step in the opposite course.

T. BAINES.

Paraffin and Woolly Aphis.—I should have been equally unwilling as Mr. Douglas to try this, had it not been recommended to me by so experienced a horticulturist as Mr. Llewellyn; and with the assurance that he thought his plants were rather benefited by it. It was said in the hearing of one of our most distinguished vegetable physiologists, who stated that from its chemical components he could quite understand this. I do not find that the roots of my plants so treated have suffered in the least, and unless Mr. Douglas can back his warning by some valid reasoning, I do not think it is of much value. I do not see much connection between an untidy garden (which I am sorry to say mine is) and an inability to grow florist's flowers; in fact, it might be put the reverse, that the owner's time is so occupied with these that he had no time for the other; but the truth is, "it is my poverty, and not my will consents." Were I a head gardener, with any amount of labour at command, I might keep my garden as neat as Mr. Douglas does his, but being only an amateur, who does a good deal of his garden himself, the weeds must sometimes have their way; and indeed this year if everyone who allowed weeds in his garden was to be set down as inefficient, it would seal the doom of many a horticulturist.—DELTA.



GARDENING FOR THE WEEK.

Flower Garden.

Owing to falling leaves, worm-casts, and decaying flowers it is now difficult to maintain neatness in ornamental grounds, but, as no enjoyment can ever be derived from an untidy garden, an effort should be made to do so. The scythe, lawn mower, roller, and broom will need to be kept going daily, and, though the ground may not continue long tidy, we shall have the satisfaction of knowing that we have done our duty as far as endeavouring to maintain neatness is concerned. The finer weather which we have had during the last two or three weeks has infused a degree of brightness into the flower beds that has not been exceeded the whole season, and this we must try to keep up as long as possible. Tender plants that are to be preserved for stock another year, and which cannot yet be lifted, ought to be covered up with some light material every night; tiffany, hexagon netting, or Frigi Domo, are all excellent materials for the purpose. The season has been of such an exceptional type that those bedding plants that have succeeded well in spite of bad weather should have the greatest prominence, and with this intent I name the following, all of which have been exceptionally good, viz., *Ageratum* Cupid, *Tropæolum Lobbianum* Perfection, *Tropæolum Bedford* Rival, *Lobelia* Brighton, *Viola* Blue Bell, *Verbena* Purple King, and *Mesembryanthemum* conspicuum. Of flowering *Pelargoniums* the following sorts have stood all weathers best, viz., *Vesuvius*, Bonfire, Happy Thought, Master Christine, Nora, and Waltham Seedling. Plants with the brightest foliage have been: *Mesembryanthemum cordifolium* var., *Veronica* incana, *V. repens*, *Kleinia* repens, *Echeveria* secunda glauca, *Sedum* acre elegans, *S. glaucum*, *Herniaria* glabra, *Mentha Pulegium* gibraltaria, *Gnaphalium* lanatum, and *Pelargonium* Manglesi variegatum, and Crystal Palace Gem. *Pyrethrum* Golden Feather has for the first time failed to be satisfactory; the excessive wet has caused it to damp off. The superiority of leaf arrangements over beds of a flowering character has been most marked throughout the entire season, and still continues to be so, and if we could but find a substitute that would give us the colours of the tender *Alternantheras* we might almost defy our fickle climate, and yet have effective beds, not only throughout the spring and summer, but during the entire year, provided a little supplementary planting of small shrubs, &c., at the end of the bedding season was carried out. The following are amongst those that are most suitable for this purpose, viz., *Retinosporas*, small variegated *Hollies*, variegated *Euonymuses*, the dwarfier *Thujas*, *Cypresses* and *Junipers*, variegated *Yews* and *Aucubas*, *Heaths*, Japanese *Honeysuckle*, and *Periwinkle* (*Vinca elegantissima* variegata). The propagation of plants for another year will still require attention; of course all the more tender kinds ought to be in safe quarters, as frost may visit us at any time. *Calceolarias* and *Violas* will now strike freely and winter well—indeed best—in a cold frame. Hardy plants may be divided and pricked out on a dry bank. *Mentha Pulegium* gibraltaria may thus be safely wintered, but if left thick on the ground as it now stands it will succumb to damp, as will also *Cerastium tomentosum* and *C. arvense*. Contemplated alterations and improvements may now be carried out. All such works should be taken in hand early in autumn in order that they may be completed before the busy spring time interferes with their further progress. Walk making, turf laying, and levelling, draining, grubbing, and trenching, and shrub and tree planting, are some of the operations that are best and most conveniently done in the autumn and winter.—W. W.

Auriculas.—If either seedlings or named varieties growing well are in pots that are not considered to be large enough for them to flower in, they had better be potted, although it is getting late in the season for that to be done. Such late-potted plants, should, however, have no surface dressing in February. We find slugs very troublesome, and the only way in which they can be destroyed is taking pains to catch them at night under lamplight. Seedlings are now coming up rather freely, and it is necessary to be careful with regard to giving water; just allow sufficient to keep the soil moist. Many keep their plants on a cool bottom during the summer; but this is just the place in which worms are likely to get into the pots. I generally set them on trellis-work, in order to keep out the worms; but if they do get in, the best plan is to turn the plants out and search for them. It would be much better for the plants to shake all the soil from their roots than it would be to allow the worms to remain in the pots.

Carnations and Picotees.—No time should now be lost in getting off layers and repotting them. Instructions as to this matter have been previously given (p. 238). See, too, that slugs are not allowed to prey upon the leaves of those that have been layered in the open ground; the leather-coated grub also eats the leaves greedily, and should be looked for at night. Rabbits are likewise remarkably fond of the leaves. Tree Carnations now re-

quire considerable attention; the plants must be removed under glass, and the stems carefully tied to sticks. Those that have not been repotted should be seen to at once. It is easy to err on the side of too large pots. Those used here are from 6-in. to 8-in. A very large plant can be grown in an 8-in. pot, and such a plant will produce a very large quantity of flowers. When the pots are well filled with roots, and it is seen that the plants lack vigour, weak manure water can be supplied to them—say about once a week.

Hollyhocks.—Seedlings may be planted out in their permanent quarters, but before doing so see that the ground is in good condition. Perhaps there are few plants that can assimilate so much gross food as the Hollyhock, and to have good results from seedlings the ground should be deeply trenched, and have at the same time plenty of rich manure worked into it. When the spikes are exhausted they may be cut over near the ground, and the roots may be lifted at once, or allowed to remain for a few weeks as it may be convenient. The commoner varieties can be planted out close together in a frame, but scarce, choice sorts had better be potted for the convenience of placing them in a warmer house early in January, with the view of obtaining cuttings from them. Until that time they may be kept in a cold frame.

Pansies.—If it is intended to flower any of these in pots no time should be lost in getting them potted into 3-in. ones. Place them in a frame quite close to the glass, and draw the lights off them both day and night, while the weather is favourable, as the heavy dews on calm nights are beneficial to them.

Polyanthuses.—If these are not potted let it be done at once. "A. D." (p. 285) misunderstands what I said about potting. He says I "favour the growing of these in pots large enough to enable the plants to carry several trusses, a course different from that acted upon by the old northern florists." It is they who use large pots (7-in. ones) to produce one truss. I advocate the use of 5-in. pots, which I consider large enough to produce and bring to perfection four and five trusses of bloom. Leaf-mould may be added to the compost, although I cannot agree with "Brockhurst" (p. 286) that it is the "natural soil for both Polyanthuses and Primroses." Who ever found them growing wild in leaf-mould?

Primulas require putting right for the winter. Most of them succeed well under the same treatment as that given to Polyanthuses and Auriculas. Strong growing species such as *P. denticulata*, *purpurea*, *Cashmeriana*, *rosea*, *Munroi*, *luteola*, *sikkimensis*, and a few others may be potted into 8-in. pots, and the smaller growing sorts into 4-in. or 6-in. ones. Some varieties are much more attractive to slugs than others, and these pests often do much damage if great watchfulness is not exercised to keep them in check. The pretty little *P. minima* and *glutinosa* seem to afford the best feeding ground for them. I place the plants in frames along with the Auriculas, and in all respects the instructions given for them apply to the Primulas.

J. DOUGLAS.

Orchids.

At this season the plants, especially the intermediate heat requiring species, and also the cool section, will need to be differently treated. *Cattleyas*, such as the different varieties of *C. Mossiae*, *C. Aclandiae*, the various forms of *C. Trianae*, *C. bulbosa*, and *C. Warneri*, that bloomed in the early part of the spring, will by now have completed their growth, and to prevent their pushing afresh must be kept considerably drier at the root; but I would caution beginners in their cultivation to always be careful not to completely withhold water too soon, that is, before the pseudo bulbs have got to their full size, and attained that stout plump condition present when they receive the requisite treatment. Where the application of water to the roots is not continued long enough, the result is, that the season's growth does not produce anything near the full complement of flowers, rarely breaking strong, or making double growths the ensuing spring in the way common with vigorous healthy plants. Examples of the above that have flowered later, as also of the two-leaved kinds such as *C. guttata*, *C. intermedia*, *C. Loddigesii*, *C. Skinneri*, and others of like habit, must for some time yet have sufficient root moisture to keep them on until growth is finished. The autumn blooming *C. labiata* with *Lælia Perrini* will now have their flowers pushing up inside the sheaths, and require to be in a temperature such as is necessary for the kinds that are growing, keeping the roots slightly moist.

Lælias of the *purpurata* and *elegans* sections require to have the treatment similarly varied according to the stage of growth they have arrived at. The autumn blooming *L. anceps* and *L. autumnalis* will be pushing up their flowers to assist the development of which the temperature of the intermediate house will be necessary, at the same time remembering that the slower they are brought on, provided there is enough warmth for the healthy development of the flowers, the longer the individual blooms will last.

Cœlogynes. *C. cristata*, *C. fimbriata*, *C. Gardineri*, and other species requiring similar treatment should be liberally supplied with water, and kept on growing until their pseudo bulbs have reached their full size.

Dendrobiums grown in the same house will need even much more diversity of treatment as to moisture at the root in accordance with the condition of growth they may be in. It is highly necessary also in the case of these, which are essentially water-loving plants during the time of their growth, that the pseudo-bulbs should be quite plump before they are kept dry at the roots; yet if water is continued too long most of them have a disposition to commence growing again, which is anything but desirable unless in exceptional cases, such as of small plants, when instead of managing them with a view to producing flowers, it is looked upon as more advisable to allow them to make a second growth, which may be kept on slowly moving through the winter, although this course is often a questionable gain. The different forms of *D. Wardianum*, *D. nobile*, *D. Schröderi*, *D. pulchellum*, *D. Pierardi*, *D. moniliforme*, *D. heterocarpum*, *D. Farmeri*, *D. Falconeri*, *D. chrysotoxum*, and many others requiring similar treatment, must, as their growth is completed, be reduced to a perfectly dry condition of the roots, but keeping them in the house in which they have been grown until their growths have time to get well ripened, a condition upon which their flowering much depends. All such plants that are approaching a state of rest should be placed, so far as possible, at the coolest end of the house, keeping the warmest end for those that have yet some growth to make.

Oncidiums and Epidendrums, along with *Schomburgkias*, *Trichopiliass*, *Zygopetalums*, *Cymbidiums*, *Bolleas*, *Brassias*, *Barkearias*, and others wanting a like temperature, require close watching, especially by beginners, in their cultivation, so as to withhold water at the right time from the plants as they complete their growth. More observation is necessary as regards this matter at this time of the year than at any other by reason of the need for yet keeping up a moderately brisk temperature for the many plants that will still not have finished growing.

East Indian House.—Those species of *Dendrobiums* usually grown in a high temperature, as the different forms of *D. macrophyllum*, *D. fimbriatum*, *D. Griffithianum*, and *D. chrysotis*, with *Cattleya superba* and other Orchids that form pseudo bulbs and require a temperature such as the East Indian house, must have water withheld as they finish their growth. The greater portion of the occupants of this warmest department, comprising most of the species of *Aerides*, *Saccolabiums*, *Vandas*, *Phalaenopsis*, *Limatodes rosea*, *Sarcanthus*, *Galeandras*, *Bolbophyllums*, and *Angraecums*, will not yet have their growth completed, and should be treated to a sufficiently high temperature to keep them growing freely, but by no means err in keeping them too hot, especially in the nights now fast lengthening; better be content with slower and less growth than to over-stimulate the plants by too much heat. Keep all according to the respective requirements of each sufficiently supplied with moisture at the roots, but reduce the atmospheric moisture proportionately with the diminished sunlight. In respect to this latter, moisture in the atmosphere, those amongst Orchid growers who have through this exceptionally sunless summer proportionately restricted the amount they have used all on through the season, will have their plants in a more satisfactory state, with a view to the endurance of the foliage and continued healthy condition, than where the ordinary routine has been followed of a fixed course of treatment during the growing season, independent of the kind of weather we happen to have.

Cool Orchids.

Odontoglossums, in like manner, will, as a rule, need to be treated in accordance with the state of growth they are in. Although plants that do not require nor can bear drying at the roots to the extent that many species will, even when their growth is finished, still they are better with their roots in a drier condition than when active growth is going on. Let those that are in full growth have sufficient root moisture, with enough air to keep the atmosphere of the house fresh and sweet; but I should advise the ventilators, or other places where air is admitted, being closed on all nights when there is a likelihood of the temperature running low, as although so much is frequently said about these plants bearing all but being frozen, still no possible good can come from subjecting them to such treatment at any time, and more especially whilst growing.

Masdevallias, *Epidendrum vitellinum*, *E. aurantiacum*, *E. erubescens*, such *Lycastes* and others as are grown in the *Odontoglossum* house, will in cases most be benefitted by now being kept at the warmest end and supplied with root moisture in accordance with their more or less advanced state of growth.

Shading.—In each of the departments, hot, intermediate, and cool, the shading should now, so far as possible, be dispensed with,

only running down the blinds when the sun happens to be bright. Where the *Odontoglossums* are grown in a lean-to house with a north aspect there will be no further need for any shade at all.

Ferns.

Where separate houses exist for the cultivation of the species of Ferns that require more or less artificial heat to grow them, it often happens from the absence of their needing, as in the case of flowering plants, treatment to ripen and mature their growth, that they are kept on growing through a greater portion of the year further than is necessary, and also that considerably more heat is frequently used than is beneficial. The confused mass of over-lengthened fronds the plants often make, both under pot culture and when planted out, necessitating a frequent reduction in the number grown, and thereby diminishing the interest attached to the collection, is frequently as much traceable to over-excitement by the use of more heat than is requisite, as it is to another cause which I have before referred to, that is, too much root-space. Another result of over-much warmth accompanied by a too confined atmosphere is that although the fronds, whilst in their younger stages have a fresh and luxuriant appearance yet through the winter and up to the time of growth in spring taking place, they lose colour and become much more unsightly than when grown cooler. Ferns more than any plants we grow should always be confined to such conditions in their cultivation as are calculated to ensure a stout, comparatively short, robust state of the fronds rather than undue extension. Not only is this essential for the general appearance of the plants from a decorative point of view, but also for the purpose of intermixing with flowers in the various ways they are employed, as growing Ferns in the manner which renders them the most durable for cutting is equally worth consideration. Although the strong-growing kinds with large fronds are generally not so much used for cutting as the *Adiantums*, *Pteris*, and similar small-growing species, yet there are many of the larger growers which have more or less elegantly sub-divided fronds, that where large vases and other similar arrangements of cut flowers are needed not only give variety, but are better adapted than the small-growing species alluded to. With a view to securing these conditions, I should advise Ferns, where grown in houses by themselves principally, being now through the autumn treated to considerably more air, accompanied by a drier state of the atmosphere, as well as dispensing with shading, which will have the effect of discouraging further growth, and will also help to solidify the fronds that are already made, but this is as far as it is safe to go in this direction, for the nature of Ferns is such that they will not bear the soil in which their roots are placed being allowed to get dry without more or less disfiguring the fronds, a result that has invariably followed attempts made by some growers of submitting some species to the dry state of the soil which they were naturally subject to in their native countries, but which the very different condition of their growth produced under cultivation makes them unable to bear. Ferns are admittedly very easy plants to grow, but to have them in the state which admits of their retaining a fresh handsome look through the dormant period, they need to be treated during the summer and autumn in a way that gives the most endurance to the fronds. It is scarcely necessary to say that the clear manure water that has been advised to be given through the growing season to those plants that are confined in small pots with little root room, should be now altogether discontinued until the time for growth commencing again comes round, substituting clean water in its place. In the case of Ferns, as with other cultivated plants, in addition to the vigilance necessary to check the quicker breeding kinds of insects as they make their appearance, such as aphides, it is well from time to time to go over all the occupants of the house to free them from any of the more persistent species like scale, mealy bug, or thrips; and if at the same time all unsightly fronds are removed, and the pots washed clean, it adds much to their appearance. It is through the dormant season now beginning that insects of all kinds can best be got under with a view to reducing the labour necessary to keep them down, whilst the plants are in active growth, at which time insect life is also most active.

Filmy Ferns.—These exquisitely beautiful plants were at one time considered very difficult to cultivate, an impression that no doubt originated through their failing to thrive when grown in the warmth usually applied to the heat-requiring kinds. But they are just as easy to manage as the generality of other Ferns when treated in accordance with their requirements, and there is no doubt that many species of *Hymenophyllum*, such of the *Trichomanes* as reniforme, pyxidiferum, and the different varieties of *T. radicans*, along with the charming plume-like fronded *Todeas*, may be grown by any one who has an ordinary greenhouse, or they will even do in a cold frame, as in several parts of the kingdom, north as well as south, numbers of full-sized beautiful specimens were kept successfully through the last severe winter without any artificial heat, and no

protection beyond a few mats not sufficient to keep them from being frozen through both fronds, and a considerable portion of the soil which contained their roots. Plants so subjected show no further injury from the cold they have been submitted to than a partial disfigurement of their old fronds, and have grown freely during the summer. To those who have not had any experience in the cultivation of these plants, it is necessary to point out that although nearly hardy their nature is such as to render their existence impossible where the atmosphere that surrounds them is not to a considerable extent saturated with moisture; consequently it is useless attempting to grow them in frames along with other plants, as it is needful to keep them all but closed with a view to avoid the drying influence of the external air. They must always be kept moist at the roots, and the bed of coal ashes on which the pots during the summer ought to stand, and in winter be plunged, must likewise be kept moist. The light also needs to be much subdued by tolerably thick shading when the sun comes at all upon the glass, as well as smearing the glass with thin green colouring during the summer months. If grown in a greenhouse with other plants they should occupy the most shady position in the house, placed on the floor enclosed within an ordinary frame or glass case made for the purpose, and also shaded when the weather is such as to require it. Single plants of *Todeas*, the hardier *Trichomanes*, and *Hyemno-phyllums*, do very well in rooms where little fire is used, especially near windows with a northern aspect, as a matter of course covered with bell-glasses, or in glass cases, and kept moist. So treated, with the little attention which they at all times require, they will go on increasing in size for many years, and are most interesting.—T. BAINES.

Hardy Fruit.

The harvesting of Apples and Pears now requires daily attention; our rule is to devote a couple of hours every fine afternoon to such work, carefully examining every kind, and gathering only those that part readily from the tree, or that the birds or wasps have attacked, the latter especially being no mean judges, both of quality and maturity; the birds are not such infallible judges, for Tomtits will attack all and sundry, if left unmolested, so that the birds must either be destroyed or the fruit must be netted up. Pears have increased in size marvellously during the last three weeks, and the latest kinds are still swelling fast, so no undue haste should be made to gather them; indeed most of them will need to be left on the trees till there is danger of injury from frost. As soon as the fruit is gathered all trees that have borne heavy crops or that seem weak from exhaustion should have the surface soil cleared away from about the roots and replaced with fresh compost, consisting of loam, with a slight proportion of lime scraps, and charcoal intermixed, the whole to be made firm about the roots, and then mulched with good stable-yard manure. If such dressings could be given to free-bearing fruit trees every autumn we should have little cause to complain, either of size or quantity of fruit, this at least is our experience, for on trees that have been regularly dressed we have never yet failed as regards having plenty and fine fruit, and the present unfavourable season is no exception to the rule. This month is also the best time to root-prune all trees that require a repression of growth, in order to make them more fruitful. Young trees that have not been planted more than three years had best be lifted entirely; their strong roots should be shortened back, and any that have been injured by digging them out should be cut clean off. The trees should then be replanted in the same soil. Large or older trees may have their roots bared, a trench cut out a few feet from the stem, and all the roots met with in the trench cleanly cut off, after which refill the trench, ramming the soil as firmly as possible, thus causing a certain amount of resistance to be encountered by the roots, which will conduce to the formation of numerous small branching rootlets that are of much more importance than strong non-lateral roots. For any new plantations that are to be made, the ground should first be thoroughly drained, and in heavy retentive soils each tree should have a few inches of additional drainage in the form of brickbats, charcoal, and mortar-rubbish. Of course, on gravelly or sandy subsoils such drainage is not required, and the trees may be planted level with the ground-line, but on heavy soils a slight elevation or mound is desirable. If the weather be favourable, and the ground in good working order, the end of the present month is the best time for planting all the following kinds of fruits, viz., Apples, Apricots, Peaches, Pears, Cherries, Plums, Gooseberries, and Currants. Clear runners off old plantations of Strawberries; lightly point over the surface-soil, and redress with good rotten manure. Young plantations should also be kept clear of runners, and those that are fruiting should be carefully protected from heavy rainfalls by means of handlights or frames. The plants of *Vicomtesse Héricart de Thury* that were planted out after forcing are now fruiting as freely as at the proper Strawberry season.—W. W.

Parks and Open Spaces.

The wet weather has kept grass in a continually growing condition, rendering mowing and rolling frequently necessary to maintain it in good order, and as it will probably grow rapidly for some time to come, I would advise that although mowing should still be frequent, rolling should only be done when the surface is in a comparatively dry state and not as hitherto when wet. The grass will be much benefited by allowing the soil to become partially dry before rolling, as whilst it is very necessary in summer to assist in retaining moisture it would now be injurious in preventing free evaporation, more especially on damp and cold soils. Grass seeds should be sown at once on bare places, or where the sward is thin and poor, choosing dry weather for the work; the quantity sown may be from one to two bushels per acre; in the case of bare places the surface should be broken up about an inch deep, adding soil if necessary where the grass is weak; a dressing of rich soil will be very beneficial; after the seed is sown the surface should be thoroughly bush-harrowed and finally rolled. A dressing of soot, salt, and lime during the month will greatly assist in destroying injurious insects and act as a fertilizer. This work will be especially necessary upon cricket and croquet grounds which have been much used during the season. Where very large spaces have become bare, turfing is the most desirable and expeditious method of dealing with them. The advantage gained by doing this work at the present time is that should we experience a favourable winter the grass will be stronger and therefore resist wear in a greater degree than if done in the spring; during the operation grass plots should also be freed of weeds as far as possible. The month of October is an excellent time to commence the re-arrangement of shrubs, a work which becomes periodically necessary in consequence of some varieties overgrowing others, over-crowding, losses, and other causes. Care and judgment must be exercised in order that a natural arrangement may be maintained, mixing the various kinds of foliage harmoniously, and having special regard to the different heights the shrubs are likely to attain. Should we be fortunate enough to have fairly dry weather during October and the early part of November, the soil will work very much better than later on in the year; nor are we likely to have very hard frosts during that period. If ordinary care be exercised not to injure the roots, and the shrubs are planted immediately after being taken up, they will in no way suffer from the effects of transplanting. New subjects may be added as required at the same time. Advantage of the season should also be taken to commence preparations where it is intended to form new plantations; the sites for these should be trenched not less than 3 ft. deep, taking care the bottom of each trench is well broken up. By so doing, great benefit will result to trees and shrubs; it assists drainage, and allows the roots to descend freely. Generally, however, the sites for plantations are more or less raised by carting soil upon them, in which case deep trenching is unnecessary. The surface should always be broken up before placing the soil thereon. Where the soil is very poor, manure should be trenched in or mixed with the soil; the manure must not be buried too deeply, 6 in. beneath the surface being quite sufficient, as it should be borne in mind that the benefit is derived from its gradual decay, the soluble portions being carried down by rains to the root in a condition most suitable for its absorption, whilst it maintains the surface in an open and healthy state.—C. DENNIS.

Extracts from my Diary.—October 1 to October 7.

VEGETABLES.—Earthing up Celery when dry. Tying and stopping Cucumbers. Trenching ground and otherwise preparing it for Cabbages. Hoeing amongst Spinach. Cutting fresh Mushrooms from bed spawned on September 3. Trenching border for Cauliflowers. Planting Potatoes in boxes, and placing them in Mushroom house. Digging south border for Lettuces. Manuring and trenching borders for spring cropping.

FRUITS.—Thrashing Walnut trees, and laying the nuts in heaps to cause them to shell. Looking over Muscat Grapes, and cutting out shanked berries. Placing boards under Melons swelling and fertilising their flowers. Sweeping the leaves off Peach trees with the view of assisting the wood to ripen. Getting pot Vines out of house, and nailing them on a south wall to harden them off before starting. Gathering remainder of Pears, viz., Glou Morcean, Beurré Rance, Easter Beurré, Bergamotte d'Esperen, Uvedale's St. Germain, Catillac, Ne Plus Meuris, Napoleon, Eyewood, and Chaudmontel and Sturmer Pippin Apples. Surfacing and top-dressing pot Vines. Storing Walnuts packed in sawdust away in barrels. Looking over Apples and Pears in fruit room. Pruning first batch of Red Currants on border. Thinning superfluous shoots from Melons.

FLOWERS.—Taking Iresine and variegated Pelargoniums into the greenhouse for the winter. Re-arranging plant houses. Tying Stephanotis and Allamandas to roof of stove. Staking Poinsettias,

and placing them in stove. Also staking Mignonette. Weeding border on which are Stocks and Pyrethrums for spring bedding. Moving Primulas from pits and frames into warmer quarters. Taking shading off houses, and storing it away in sheds when perfectly dry. Taking Eucharis amazonica from pits, and placing them in stove for flowering.
R. GILBERT.

ASPARAGUS CULTURE.

(Concluded from p. 250.)

THE ASPARAGUS GROWER'S CALENDAR.

January.

Culture in the Open Ground.—Finish manuring the trenches which have not received their proper share earlier in the season, and level the mounds. Prepare the ground for fresh plantations in the spring, and finish the hoeings and diggings in those places where the trenches are to be opened at the end of the month.

of forced Asparagus if you have not already begun to do so in January.

Forcing in Heat.—Keep warm those beds intended to yield at the end of February and the beginning of March.

March.

Open Ground.—Continue planting in dry situations, beginning only at the end of the month in damp soils. Begin to earth up at the end of the month those heads which show signs of appearing. Earth up in the trenches to a depth of 2 in. or 3 in. if you have not done so in February. Begin cutting the early varieties.

Frames in the Open Ground.—Take away the frames and stable manure towards the end of March. Empty the trenches and fill them with soil.

Forcing in Heat.—Towards the end of the month break up the beds, the open-air culture taking the part of forcing in heat.

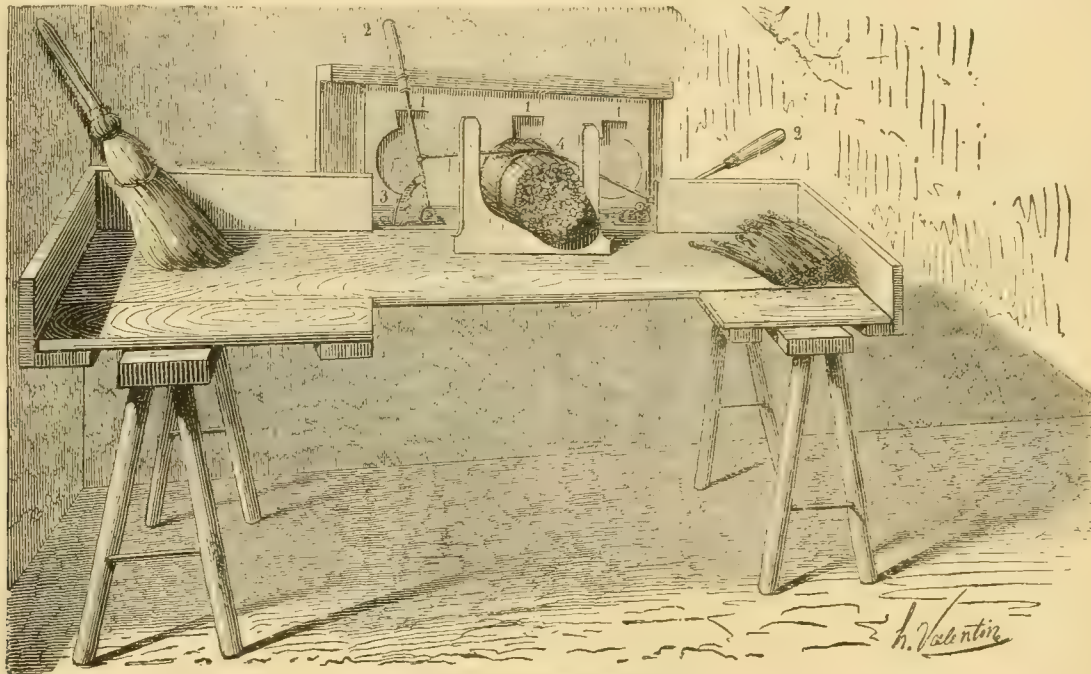


FIG. 1. Punning Machine

Forcing in the Open Ground.—The beds of the first season are nearly exhausted by this time; we must therefore prepare others, so that we may have Asparagus in January, February, and beginning of March. On days when the sun shines we must uncover the frames; if the weather is cold increase the quantity of stable manure, and, if necessary, put some inside the frames.

Forcing in Heat.—Make new beds for Asparagus to be gathered at the end of January and the beginning of February.

February.

Open Ground.—Begin planting in dry situations, and open up trenches in moist ones, so as to expose the soil to the action of the air. Manure those soils which have become poor with well-rotted stable manure, artificial manure, ashes, composts, &c., and replace the soil dug out before the winter sets in.

Forcing in the Open Ground.—Continue the work of the preceding month, and begin gathering the second batch

April.

Finish planting and earth up those stools which have been left open during the preceding month. Continue to gather, hoe and weed the beds and the mounds. Keep a sharp look-out for the *Crioceris* and other insects. Destroy snails and slugs, both of which are particularly fond of the young heads just at the moment when they show their tips above the surface of the earth.

May.

Continue to gather, hoe and weed the beds and mounds. Wage incessant war against the Asparagus beetle and other enemies of the plant. In young plantations especially keep a sharp look-out for the cockchafer grub. Sticks are placed at the foot of the stems of the young plants to which they are tied with rush or bast; or else they are left unearthed, which is quicker and easier when Asparagus is grown on a large scale. If the season is dry, from 2 in. to 3 in. of soil is placed above the stools planted in the spring, so as to keep them fresh. When once they have begun to show any heads above the

ground, the stools may be covered to the depth of 6 in. without harming them.

June.

Discontinue gathering about the 10th of the month, or even earlier. We must cease gathering in those plantations which show signs of weakness, as well as those in which very early varieties have been planted, according to the season. A falling off in the thickness and length of the heads is a sure sign that the plantation wants repose. Continue to hoe. Let the young shoots be attached to training sticks, as directed in the preceding months. A sharp eye must be kept on the enemies of the Asparagus grower, the mole, the Asparagus beetle, and the cockchafer grub.

July.

This is the period at which the Asparagus beetle lays its second batch of eggs. This insect must therefore be well looked after, whether in the beetle or larvæ stage, or in

the attacks of their usual enemies. At the beginning of the month, however, a sharp look-out should be kept for any straggling beetles or white worms.

October.

In light and dry situations we may begin planting, but only in warm localities. In the north and centre of France, and *à fortiori* throughout the whole of England, it is better to wait for the spring. We should also towards the close of the month cut down the old heads and begin to unearth, dressing heavily with well-rotted stable manure, artificial manure, oil cake, wood ashes, compost, &c. Damp soils are drained if they are intended for spring planting. Mixed mould, manures, and composts should be prepared for use in the coming spring, and a good supply of young plants should be secured beforehand.

November.

We now begin to force Asparagus in the open ground and in

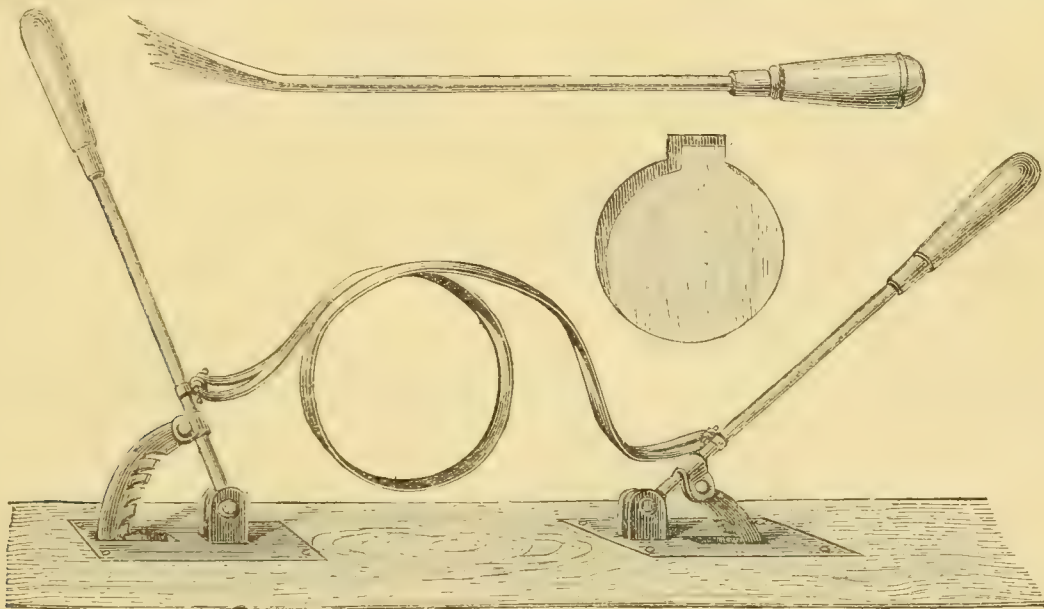


Fig. 2. Tying Machine.

the egg. War must also still be waged on the white worm. Hoe and weed where necessary. Young plantations in gardens in very light and dry soil must be watered, if the weather is very dry and hot, at least every fortnight, if possible. Young shoots should be tied to training sticks.

August.

Insects and other pests must be hunted down. The trenches and mounds must be hoed and weeded if necessary, and the taller shoots of the plants supported by sticks, so that the wind may not break them down. This is only necessary in situations which are exposed to high winds; in sheltered positions it is unnecessary.

September.

The work to be done during this month is very small. When Asparagus is planted in vineyards the work is limited to tying the long overgrown shoots to training sticks to keep the wind from blowing them down, or to prevent them from keeping the sun and air from the Grapes, and so preventing them from ripening. Weeding and hoeing operations are carried on if necessary weather permitting. At this period of the year the young plantations are usually free from

heat. The stems of the plants above ground are cut down to the height of 12 in., and then tied up in bundles for burning. The mounds are dug up and lowered, so that manure may be brought within reach of the roots. We continue planting during the first fifteen days of this month in dry lands. In the south of France we may plant during the whole of the winter. Unearthing is also continued, as well as manuring. The ground may also be prepared for the spring plantations. Borders and mounds and trenches are prepared for forcing.

December.

The work indicated in the month of November is continued, and unearthing and manuring are discontinued. Composts and manures are prepared for spring plantations and good plants are secured, if that has not been done already. Fresh manure should be added to those beds in the open ground where forced Asparagus is being grown, if the weather is excessively cold. Hotbeds are examined and, where necessary, fresh ones are made.

M. PARENT'S BUNDLING MACHINE.

The operation of packing the gathered heads into bundles has already been described as it is performed in the ordinary

bundling machine : but M. Parent has invented a bundling table which is in every way superior. It consists of a table provided with rising edges like a gardener's potting table. In the middle of it, as shown in the figure, a hollow has been cut to allow the packer to reach over his work. The gathered Asparagus is arranged on the table. In front of the workman is a semi-circular upright piece, as in the ordinary packing table. This slide is movable backwards and forwards, according to the length of the heads. At the further end of the table there is an upright frame, firmly fixed to it. In this frame is a slide with a backwards and forwards motion, and provided with a series of circular holes of different diameters, intended to receive the tips of the heads of the Asparagus and regulate the size of the bundles. These holes are cut into the slide but not through it, and have a depth of 1 in. or $1\frac{1}{2}$ in. In the upper part of the circumference a hole is cut so as to allow the last heads of the Asparagus to enter without any damage. If we want large bundles

Pinching off the Tips of the Shoots of Asparagus.—This operation is intended to do away with the necessity for supporting the young Asparagus shoots with the training sticks used to prevent them from being broken or blown down by the wind, and, according to M. Parent, to give greater strength to the stool. It is performed three weeks after gathering, the tips of the shoots being cut off by the aid of the *sécateur*. This cutting should be made between the twentieth and twenty-fifth branch in the case of female stools, and between the twenty-fifth and thirtieth branch for male stools, which are generally much the stronger of the two.

An attentive perusal of previous notes on the use of the plough will show the Asparagus grower that by following M. Parent's directions implicitly, he will save time in hoeing and digging, in planting, in earthing up, which can be done at the rate of $1\frac{1}{2}$ acre a day, in unearthing, which is performed with equal rapidity, in gathering, in packing, and in doing away with training sticks. The intervals and part of the

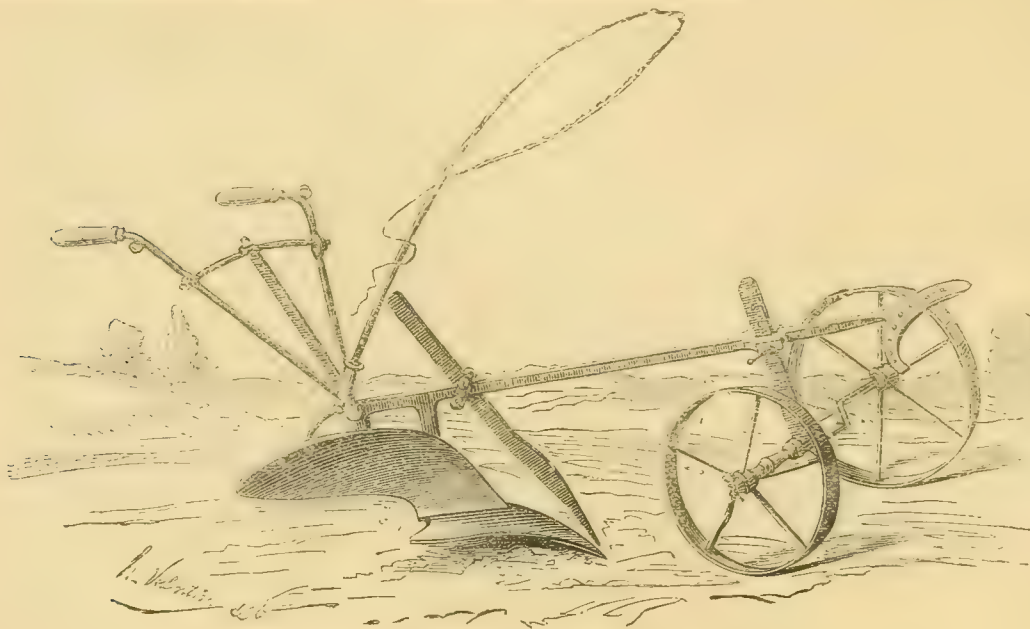


FIG. 3. Asparagus Plough.

of Asparagus, we slide the frame backwards or forwards until the hole required is exactly opposite the semi-circular upright piece. The bar of the circular mould is marked with a line, a corresponding line being made in the upright fixed piece, so that the particular mould desired may be quickly brought into the proper position. The tying machine is also an ingenious contrivance, and is shown separately in figure 2. It consists of two handles, provided with rackwork at the base, and connected together by a leather strap. This table is so simple that it may be worked by a woman or child. The woman or child seizes the heads of Asparagus and arranges them in such a manner that the largest are outside, and lays them on the semi-circular upright piece with their heads in the mould. The mould being full, the strap attached to the left-hand handle is passed round the bundle and attached to the right-hand handle. By pressing lightly on the strap by means of the handles, the bundle is held tightly, the handles being kept in their places by the rackwork. A couple of strings are then passed round the bundle and tied firmly, the strap is released, and the bundle is fit for market.

pathways being under cultivation, the crops grown on them almost pay the rent of the land. The art of growing Asparagus still requires to be greatly improved, but it has made great progress during the last few years. By the plough system the Asparagus produced is not so fine as that grown otherwise, but it nevertheless yields excellent results and leaves a good profit to the producer. GODEFROY-LEBEUF.

THE LATE INTERNATIONAL POTATO SHOW.

FROM the following list of Potatoes exhibited at the Crystal Palace on September 17 and 18, it will be seen that no fewer than 2101 dishes were staged as compared with 1539 dishes last year, and 1744 in 1876. Of this total there were 1541 dishes of English and 560 of American varieties as compared with 1076 dishes of English and 668 dishes of American sorts in 1876, and 1039 dishes of English and 500 dishes of American varieties in 1878. These figures are interesting, as they demonstrate pretty clearly that the Potatoes of American origin are less popular for exhibition purposes than they were two or three years ago. The number of varieties exhibited were 152, as compared with 204 in 1876 and 168 in 1878, and of those 29 were of American origin, or 5 less than in 1876, and 8 less than last year.

In point of numbers International Kidney is at the head of the list, for no fewer than 108 dishes of it were staged, or an increase of 42 dishes on the number of this variety shown last year, and surpassing by four the number of dishes of Snowflake exhibited in 1876, when that variety was at the zenith of its popularity. Next on the list is Magnus Bonum with 96 dishes, or an advance of 34 upon the number staged last year, thus showing that this famous variety is held in high esteem by cultivators for exhibition, as well as those who grow Potatoes simply for home consumption. Snowflake, which stands third, was represented by 69 dishes or four less than last year. 54 dishes each were staged of Grampian and Porter's Excelsior as compared with 59 and 40 respectively last year, or a decrease in the one case of 5 dishes, and an increase of 14 in the other. Schoolmaster and Early Vermont were the only other varieties of which more than 50 dishes were staged, the actual numbers being 58 and 54 respectively, or a decrease of 12 dishes in the case of Schoolmaster, and an increase of 48 in the case of Early Vermont. The varieties forming the Lapstone race, which have hitherto figured prominently at the International Shows, were but sparingly represented, as a glance at the following list will show:—

ENGLISH VARIETIES.

Name.	No. of Dishes.	Name.	No. of Dishes.	Name.	No. of Dishes.
Advancer W.K.	9	Fielder's Surprise	5	Racehorse, W.K.	4
Ashtop Fluke, W.K.	14	Golden Eagle, C.R.	12	Rector of Woodstock,	
Avalanche, W.K.	8	Garibaldi, C.K.	17	W.R.	24
Beauty of Kent	19	Gloucestershire Kid-		Red Emperor, C.R.	20
Beckenham Beauty	14	ney, W.K.	7	Red Fluke, C.K.	8
Bountiful, C.K.	9	Gloucester Red	7	Red Skin Flourball,	
Baron's Perfection,		Harbinger, W.R.	9	C.R.	12
C.K.	25	Henderson's Prolific	6	Rail-tock Beauty, C.R.	37
Benton's Early	4	Heather Belle	11	Robinson's Kidney	1
Black Prince	4	Ice Cream	9	Royal Ashleaf, W.K.	8
Birmingham Prize-		Isle of Thanet Kidney	4	Scotch Blue, C.R.	33
taker, W.K.	9	International Kidney		Scamles's Glory, C.R.	6
Blair, W.K.	34	W.K.	108	Scamles's Surprise	4
Beaconsfield Kidney	4	Jackson's Kidney,		Salmon Kidney, C.K.	17
Bedford Prolific, W.K.	12	W.K.	3	Schoolmaster, W.R.	58
Belgian Kidney, W.K.	8	Johnston's Downshire,		Sexton	2
Beshire Kidney,		King's Own	9	Striped Glory	4
W.K.	8	King of Potatoes		Scotch Champion,	
Britannia	2	W.K.	16	W.R.	34
Carrington's Nonsuch	9	King of Flukes, W.K.	6	Sultan	3
Coldstream, W.R.	3	Laty Gordon, W.R.	3	Sutton's Seedling	17
Covent Garden Per-		Lady Webster, W.R.	11	The Queen, W.K.	11
fection, W.K.	33	Lady Paget, W.K.	7	The Countess	3
Crimson Walnut Leaf,		Lye's Favourite, W.R.	12	Veitch's Improved	
C.K.	7	Luptone, W.K.	9	Ashleaf, W.K.	18
Cosmopolitan, W.R.	4	Model, W.K.	17	Vicar of Laleham,	
Criterion, W.R.	7	MacKinlay's Pride	7	C.R.	23
Dalmahoy, W.R.	7	Mona's Pride, W.K.	13	Victoria, W.R.	11
Dawes' Matchless,		Magnum Bonum.		White Emperor, W.R.	9
W.K.	8	W.K.	96	Womerleighton's	
Duke of Edinburgh		Marquis of Lorne,		Seedling	3
Dux	1	C.R.	6	Walker's Regent,	
Early Bird, W.K.	9	Meal Ball	12	W.R.	6
Early Market, W.R.	9	Myatt's Prolific Ash-		Webb's Surprise, W.R.	7
Early Handsworth,		leaf, W.K.	13	Wonderful Red Kid-	
W.R.	12	Norfolk Giant, W.R.	9	ney, C.K.	16
Early Prolific	6	Onwards, W.R.	8	Waterloo Kidney,	
Early King, W.K.	22	Old Ashleaf, W.K.	7	W.K.	3
Early Purple	3	Oyster Kidney, W.K.	1	Woodstock Kidney,	
Early Scamton	6	Porter's Excelsior,		W.K.	38
Early Emperor, C.R.	12	W.R.	54	Walnut Leaf, W.K.	13
Early Hummersmith		Prince Arthur, W.K.	19	White Regent, W.R.	8
W.K.	6	Princess of Wales,		White Scotch Rose	3
Edgemoat Seedling		W.K.	5	White Wonder	2
W.K.	12	Purdie, W.R.	4	Wheeler's safeguard	4
Fox's Improved, W.R.	8	Purple Ashleaf, C.K.	8	Woodstock Round,	
Fenn's Seedling	4	Premier, W.K.	3	W.R.	8
Fittie's Anne	7	Pride of Dunster	4	York Regent, W.R.	13
Fluke, W.K.	14	Robson's Prolific,		Yorkshire Hero, W.K.	9
Crampian, C.R.	54	W.R.	2	Dishes not named	

AMERICAN VARIETIES.

Name.	No. of Dishes.	Name	No. of Dishes.	Name.	No. of Dishes.
Alpha, W.K.	9	Centennial	13	Manhattah, C.K.	7
Burbank Seadling	6	Climax, W.R.	15	Oueda, C.R.	9
Beauty of Hoboken, C.K.	45	Compton's Surprise, C.K.	7	Peach Blow, C.R.	14
Brownell's Beauty, C.R.	14	Early Goodrien, W.R.	9	Paragon, W.R.	9
Brownell's Superior, C.K.	13	Early Rose, C.K.	22	Pride of Ontario	7
Bresse's Beauty, W.R.	13	Early Vermont, C.K.	54	Ruby, C.K.	13
Bresse's Peerless, W.R.	37	Early Gem, C.K.	4	Shelburn	6
Caters' Great Fruit, W.R.	33	King of the Earlies, C.R.	7	Snowflake, W.K.	68
		Late Rose, C.K.	19	Trophy	46
				Triumph	37
				Washington, C.K.	6

Chapman's Migration

DISEASE PROOF POTATOES.

This subject has recently been revised, and we are recommended to grow the variety called Magnum Bonum, which is declared to be disease proof. A writer in the *Standard* says that "cur only remedy against disease is to return to natural propagation by crossing the best and strongest growing varieties." The same authority also adds that this system has already brought us one disease resisting Potato, and Mr. Shirley Hibberd writes to the same paper to explain that this Potato is Magnum Bonum. I do not know the history of that variety, but there can be no doubt, I think, that up to the present time it has escaped disease; that, however, is no proof that it is disease resisting. Its immunity from disease is due, I imagine, to its lateness, in which respect it may be compared to the Red-skinned Flourball, which is also disease resisting in the same way, but it is not such a good Potato as Magnum Bonum. I think it is generally admitted by both practical men and theorists that all kinds of Potato escape the disease till they approach the ripening period. As soon as they have done growing and begin to ripen then disease makes its appearance. This is exemplified every year in every plot of Potatoes where two or three varieties are grown, and it is also clearly exemplified in the same sorts in different localities. When they are late the disease is late in attacking them, and *vice versa*. For example, in our very late locality the Dalmahoy escaped disease this season up to the middle of the preceding month (Sept.), while in earlier places it has been completely destroyed sometime ago, and since the date just quoted it has gone quite bad with us also. I have carefully noticed the progress of the disease among our Potatoes here since it began, and I find it just to follow the varieties according to their earliness. It began with Mona's Pride, and took the following varieties in rapid succession and in the order named, viz.:—Common Ashleaf, Rivers' Royal Ashleaf, Porter's Excelsior, Schoolmaster, Dalmahoy, the Grampian, and York Regent. The two last are the least affected yet, and Champion and Magnum Bonum are still quite free from disease, but far from ripe, the leaves and stems being still as green as a Leek. Magnum Bonum has just reached the turning stage when the skin begins to harden. Part of the crop we shall leave in the ground, and if October is mild, and it passes through that month without becoming affected, it will deserve the name of "disease proof," so far as this district is concerned, but I doubt it will go the way of the others when the critical period of growth has fairly turned. The variety which has produced the greatest proportion of sound tubers after lying in the ground for awhile after the haulm was ripe is Schoolmaster. The best croppers this season with us are York Regent and Magnum Bonum, but the last would require twice as much room as the first to do it justice. Champion is quite a disappointment as regards crop.

J. S. W.

DEPTH AND FIRMNESS IN SOIL ESSENTIAL.

THE adaptability of the earth's surface for the production of the many forms of vegetable life must vary according to the depth and character of its permeable crust. Nature, in her cropping arrangements, notes this fact, and always plants the crop that is most suitable for the time being; but all things are progressive, and the first crop is only a preparation for the next; for as the character of the soil changes, so also do the plants it bears. Look at the crumbling ruin! first comes the grey lichen, and spreads itself over the face of the stones, gradually eating into their surface; then, as damp and frost, and the other forces Nature brings to bear upon all things in order to provide food for the myriads of mouths waiting to spring into active life, have performed their mission, other plants of larger development establish themselves, and the work of destruction and decay goes rapidly on. In the case of the drained swamp or marsh, the forces of Nature, aided by man, are working to the same effect, but in an opposite direction. In this case the strong-rooted semi-aquatic plants first appear, perform their work of assisting in the draining and aëration of the land, then disappear, and are succeeded by others of fibrous root growth, and finer but more nourishing herbage. So it is everywhere; when Nature is left to herself, the fittest only survive. In our cultural operations there is also a certain fitness of things that should never be ignored or lost sight of. We should imitate nature so far as to select the right plant for the position, or else fit the position for the plant; and both of these questions are worthy of much careful study. Some years ago, in carrying out some alterations here, I had an opportunity of increasing the depth of all our beds in the flower-garden to something like 3 ft. of good soil. The work was heavy, but I am sure the expense was a good investment, as a much better result, with less labour, has been obtained since; and what is perhaps of greater importance, we are pretty well independent of the seasons. For this year, which is an admittedly unsatisfactory one, our beds have never been better filled; the greater depth of soil has supplied perfect drainage, and

Potato Magnum Bonum.—This Potato with me has been very free from disease. From 28 lb. of seed I dug 8 pecks of good-sized Potatoes, amongst which I found only three diseased tubers. The haul of this Potato was the last to become affected by the disease.—J. T., *Atwalton*.

consequently warmth; and, although the growth was slow, yet it was continuous and of a floriferous character. The improvement wrought by deepening the soil is great, and there are collateral advantages connected with it which all who have had much to do with the cultivation of land will readily admit. Shallow soils must be fed continually, or they lose their power of production; for we have otherwise no hold upon their fertility. The manurial matters are either quickly washed out, or the vegetable matter they contain is dried like tinder by the fierce heat of the sun. When the soil is deep it has greater power of retaining whatever is given to it. As both temperature and moisture are more equable, being less influenced by external circumstances, and if only a loose friable surface is maintained, other cultivating operations are never so urgent, and may be—in fact, are best done in winter, which gives plenty of time for consolidation; and this latter condition (firmness) is quite as essential in most soils as depth; for unless the land is reasonably firm, the plant or tree cannot get a good grip of it, so as to produce short-jointed growth. Most plants when growing in a bed of loose soil will make long soft fibreless roots, and the top growths always, in some degree, corresponds with the progress of the roots. And where the latter rushes away in a bed of soft earth, the top is usually as bare of branches at the base as the main roots are of fibres. This is a matter that should be allowed to have some influence upon the construction of Vine and other fruit tree borders. Where these have to be made, the most perfect plan would be to adopt a piecemeal system. Plants are like most of the lower animals, they have no power of self-control when exposed to the temptation of high living; and under our artificial system of cultivation of the choicer kinds of fruits, success will in a great measure depend upon the control the cultivator keeps over their food supply.

E. HOBDAY.

THE FRUIT GARDEN.

ROOT PRUNING.

At this season of the year one would imagine, judging from the many directions given for root pruning, that it was an operation of daily occurrence, whereas its beneficial effects are by many not only doubted, but it is thought that positive injury is in many cases inflicted on healthy trees through its being injudiciously performed. A fruit tree may be observed to be making extra vigorous growth, and forthwith the inexperienced cultivator having read of the wonderful results of root pruning, proceeds to cut off a quantity of its roots, whether that is necessary or not. Root pruning is certainly useful in some cases, but from my own experience in various soils and localities, I am convinced that in nine cases out of ten, if a tree cannot be got into a fruitful condition without perpetually lifting, replanting, and root pruning, the sooner it is uprooted and thrown away the better. I well remember the time when it was considered unsafe to manure fruit trees, but now they are proved to repay generous treatment equally well as any other kind of tree. In this neighbourhood fruit culture for market is one of our largest industries, and a large amount of capital is invested in it by men who have followed it as a profession from boyhood, and who lose no opportunity of putting anything into practice likely to make their trees more prolific and remunerative. But root pruning is not practised, and I may say is unknown, worthless or worn-out trees that are not vigorous enough to graft being grubbed up and burned. The secret of the Kentish fruit grower's success, in addition to a naturally strong soil, lies in enriching it well before planting; indeed, the majority of young orchards hereabouts succeed old Hop plantations that have been highly cultivated and manured for years, and the growth which the young trees make under such conditions would alarm the advocates of root pruning. By carefully selecting sorts, however, that do bear crops, the owners, as a rule, get well rewarded, and if a crop happens to fail it is not superabundant vigour that is blamed. The pruning is varied according to the habit of each variety, and as regards the Apple, truly the king of fruits about here, very little pruning is done in reference to it after the tree commences to bear. The ordinary mode is not to prune at all the first year after planting; but the following year, and for four or five years afterwards, the leading shoots are thinned out and shortened until a well-balanced head is formed. After that the trees are looked over every alternate year with the view of keeping their centres clear of useless spray, but the outer portions are left quite thick, forming regular umbrella-shaped heads, varied only by the natural growth of each particular variety, and as the trees are generally planted in rows of distinct sorts, any one may distinguish the kinds that are most esteemed by their numbers and habit of growth alone.

If a tree of any kind does not prove to be fruitful the remedy consists in sawing off the whole of the outer branches when they are

about the size of a broom handle and putting two grafts on each. Thus a good-sized tree may have fifty or more grafts upon it, and owing to comparatively young wood being used they seldom fail; on the contrary, they grow vigorously and quickly cover the cut portion with new wood, leaving no decaying dead wood, as is the case when the trees are headed down low and large limbs grafted. It is astonishing how quickly fine, free-bearing trees are obtained in this way, and common strong-growing kinds make the best of stocks on which to work better kinds. This double grafting almost invariably produces fruitful trees, and the more vigorous they are the finer is the fruit.

I may mention that many of the largest growers have a special plot or trial ground for proving new or but little-known sorts, which receive liberal root treatment. I lately saw a quantity of young pyramids which, the first year after bearing, were carrying excellent crops of finely-coloured fruit that looked as if it had passed through a favourable summer, so bright and clear was it. The soil in which they grew was well cultivated and manured and only lightly cropped between the trees, while two and three-year-old trees were generally carrying good crops of such fruit as the starving and root-cutting process could never have produced. My impression is that fruit trees of all kinds are more frequently induced to become barren and to make gross, watery shoots instead of fruitful spurs by starving than by over feeding, as if they cannot find soluble food near the surface they are sure to root down into the cold subsoil. I have tried mulching the roots of Peach and other tender wall trees that had for years produced gross, immature wood and no fruit, and without any interference with the roots beyond forking up the surface and adding a little fresh loam in autumn, and a good mulching of partly decayed manure in the early summer months; they have soon filled the walls with good bearing wood. I am aware that soils and seasons vary greatly, but I never yet could see the benefit of taking any kind of tree up to examine its roots, as the character of the top-growth will, as a rule, determine that matter. If every means is taken to get healthy, fruitful wood, roots of a similar character are sure to follow, and if well treated they will take care of themselves. The orchards here are cultivated and enriched the first few years, and when laid down with Grass are grazed with sheep. It has been amply proved that if the Grass is cut and carried away the trees soon deteriorate, but if grazed with oil-cake fed sheep they improve and bear heavy crops. If one looks at the weight of fruit which in favourable seasons a healthy tree will produce, it follows that the soil must soon become exhausted if means are not taken to replenish it through the application of rich food applied on the surface. I would strongly recommend any one wishing for fruit in abundance to let the roots of healthy trees alone, and try mulching and top-dressing, and only practice on old or useless trees by wholly uprooting them to make room for young ones.

JAMES GROOM.

Linton.

NOTES ON FIGS.

Negro Largo.—Some time ago I was assured by Messrs. Veitch & Son, of Chelsea, that the Negro Largo Fig was likely to prove an excellent forcer, like the Brown Turkey; and, after a short trial, I think I can indorse that opinion. There are great differences in Figs in this respect, and it is important to know what sorts force freely in the case of plants that have to be forced for two or three crops in the year. Some kinds are not worth the place they occupy for this purpose. I received two small plants of the Negro Largo last year early, and this season I put both plants into 20-in. pots at once, with the object of making big plants of them quickly, and not thinking of a crop. They, however, showed a quantity of fruit on the last year's wood, which did not all drop, though the plants had been shaken out just before being started, and later on produced a better second crop, every fruit of which has come to maturity and proved excellent. I consider this good promise in a plant that has plenty of root room and is being encouraged to grow strongly at the same time, for nothing is more inimical to fruitfulness in a Fig than free root action. The fruit is good-sized and of a purplish black colour.

Raby Castle.—This is another extraordinarily prolific variety, and produces two or three crops in close succession; fruit moderately large, not very high flavoured, but very sweet and agreeable. When planted out in the border, the fruit is much larger, and produced more freely than with most kinds under similar treatment. I believe there is a fine old plant of this fig at Raby Castle, from which the name is derived. In the "Gardeners' Assistant," new edition, this Fig is described as synonymous with White Marseilles; but those who have seen the two grown together would never confound them. The Raby Castle is larger than the Marseilles. In some cases we have seen it as large as the largest Brown Turkey; but it bears such

a quantity of fruit that, unless thinned, they do not attain to their true size.

Peyusota and Grosse Bourgassotte we have also tried during past years, and find both to produce fruit of excellent quality; but they do not suit our purpose so well as the old Brown Turkey or the Negro Largo. J. S. W.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Hedge Nuts.—When recently in Kent, I examined a large number of small Nuts gathered from the hedgerows, and found that three-fourths of them were devoid of kernels; indeed, the inside was quite black, although the shell was perfect. I fear those who have been reporting the abundance of small Nuts will find that the crop is after all but a very poor one. That the trees should in this way produce shells or the woody portion of the fruit without any corresponding edible part is singular, and probably entirely confined to Nuts. Plums, Peaches, &c., never produce the luscious fleshy portions of their fruits, except the kernel is entire, and any deficiency there renders dropping of the fruit inevitable. It is almost strange that the same result does not follow to hard-shelled fruits. The experience of the present year will make us chary how in future we report early in the season upon the Nut crop.—A. D.

Grapes Shank.—In one of our Vineyards here we have about half-a-dozen bunches badly shanked, and the shoot on which each of them is growing happens to have no leaves or wood beyond the bunch; other bunches with plenty of leaves beyond them show no signs of shanking, and judging from this, one would be inclined to think that close pinching is one of the causes of shanking.—CAMBRIAN.

Autumn Treatment of Raspberries.—Those who wish to give their Raspberry canes a fair chance of producing a good crop of fruit next year should lose no time now in cutting away all the old canes which have been bearing this season, and in tying the young ones into the places in which they are to fruit next year. At the same time all small growths that are not wanted should be cut away so as to let as much air in as possible to ripen the fruiting wood. We adopt the above plan annually and find it to answer admirably. We always tie our Raspberry canes with small Willows, which we find both cheaper and more durable than twine or matting.—CAMBRIAN.

A Word about Apricots.—Since 1854 there has been no more trying season for Apricot trees than this, the trees dying while in flower and in fruit. It is peculiar to find Apricots grown so generally as they are in Cleveland; about Great Ayton, and other villages they may be seen on almost every house, and without much regard to aspect, but in most cases they have suffered much; indeed, in many cases quite killed. In front of the Workhouse at Stokesley the Apricots used to be quite a sight, their fruit bringing a return of from £10 to £12 per year; the trees now, however, seem to be quite wrecked. This week I have examined about thirty of them, chiefly planted against cottages, and I have found them to be all less or more in a decaying condition, and in most cases there is the appearance of bad grafting. In trees where the union of stock and graft appears sound they are clearly in better health. It is to be regretted that so little attention is paid by cottagers to planting healthy young trees. It is assumed by every one about here that Moorpark is the best variety, and mere fragments of trees of it are planted which remain for years in an unfruitful state. The Royal Apricot is, however, the most fruitful and most healthy in Cleveland; this season on young trees of the Early Oullins the fruit ripened well, but it is not much planted. From a tree of the Royal variety on a cottage in Stokesley, planted in a paved yard, I have seen gathered this season over 240 fair-sized Apricots, the market value of which was thirty shillings. The tree in question was planted five years ago by Mr. Barker for one of his workmen, and for three seasons it has produced fair crops. It is worthy of note that rider-trained trees are decidedly the best for yards or road-sides in villages.—CHAS. McDONALD, *Stokesley*.

The Hail-storm Relief Fund, 1879.—The large number of applications which have been sent in to the committee for relief from the fund—sixty-eight in number—is indicative of the great amount of suffering caused by the hail-storm of August 3. Many of them are piteous appeals for assistance, if only small in amount, to meet pressing necessities, and it is an indisputable fact that a large quantity of broken glass remains to be repaired from want of means to replace it. The sixty-eight applications for relief represent an aggregate amount of stated damages, amounting to £3,600. In addition there is, on the part of some members of the committee, knowledge of sufferers who are too modest to advance requests for assistance, but whose cases will not be overlooked. £800 (the pre-

sent amount of the fund, and from which the working expenses have to be deducted) is but a small sum comparatively with which to relieve so much pressing necessity, and the committee are now making a further appeal for subscriptions. The sixty-eight applicants for relief reside in so large a district that it has been found necessary to sub-divide it into four divisions, and an investigation sub-committee has been appointed for each of them. Such sub-committees are now at work examining statements, overlooking breakages and repairs, and collecting reliable information so that each applicant may have his case fairly set forth. The work is heavy, but it is being readily and gladly done by properly qualified practical business men. It is important that the fund should be shortly closed so that, concurrently with the consideration of the reports of the investigation sub-committees, the existing committee can make their awards and administer relief. Will all who are willing to help be good enough to contribute the same without delay; The sooner the work can be brought to a close the more welcome will be the relief to be administered to those who are sorely in need of it.—RICHARD DEAN, *Roadsby Road, Ealing*, EDWARD KING, 14, *King St., Richmond*, Co. Hen. Secs.

GARDENING IN SOUTH AFRICA.

THE following interesting remarks on this subject have been forwarded to us by Mr. James O'Brien, of the Pine-apple Nursery, Maida Vale, for publication in THE GARDEN:—

Kraggakamma, March, 1879.—I think you know that our ship on her way from London to Algoa Bay called at Cape Town, where we stayed three days; during that time I went on shore and had a look at the town. From its situation, facing the midday sun, it is exposed to great heat, and is immediately backed up by naked mountains; quite close to it is the much-talked-of Table Mountain. Over the top of the mountain hung a beautiful white mist or cloud, but nevertheless I had an irresistible longing to go up to see growing wild the glorious *Disa grandiflora*, about which I had heard so much at home. Therefore, on the day of my arrival in Table Bay I made arrangements with a native guide to ascend the mountain the next day, and accordingly on the Wednesday morning (Feb. 19) we set off. When about half way up we halted, and after resting about half an hour we made a fresh start, and after about three hours' hard climbing we reached the summit. Although the mountain is only about 3600 ft. high, I found that I had much underrated the task which I had set myself; but I was intensely gratified on my way to find growing wild several species of plants which I had had under cultivation at home. If I may venture to name *Heaths*, *Erica gracilis* was growing by the side of the path for a mile or two, and also a scarlet variety. Of *Pelargoniums* I only saw a very small zonal—as small as *Harry Hieover*, and with flowers of the quercifolium type. *Crassula coccinea* was very bright and striking, and I also noticed a dwarf *Agapanthus* with very short foliage and flower stems about 15 in. high, very much resembling a tall-growing *Scilla*, such as *S. campanulata*. There were not, however, many plants in flower, as February is the end of the summer here. I found several *Sedums*, a very dwarf *Crassula*, *Santolina erecta*, *Asperula montana*, also a plant exactly resembling *Leucophyton Browni*, great quantities of *Pachyphyton roseum*, several *Everlastings* (*Helichrysums*, *Xeranthemums*, and *Aphelexises*), a few *Ferns*, *Blechnum Spicant* (true), and *Asplenium Belangeri*; but these were not what I had in view, so I pressed on and found myself on the so-called Table. Here a scene of indescribable grandeur presented itself. This was the first time I ventured to look around for a few minutes; then, continuing on our way, we came to what I will call a very rough meadow, the whole surface of which was covered with coarse Grass and other plants just gone out of flower—not a small space of ground, but several acres in extent, with rock rising up all round it; and wondrous were the grotesque-looking forms of the rocks. Travelling across this meadow for half a mile or so, we came to a small stream 8 in. or 10 in. deep, seemingly formed out of the solid rock. Here you may imagine my delight, when I had wiped the mist away from my eyes and beheld the wonderful *Disa grandiflora* in full flower. The *Disas* grow just in such places as one would expect to find the *Myosotis sylvatica* or *palustris* wild at home, that is, just on the edge of the water, which at times overflows them; and the soil consists of decomposed rock, in which the bulbs are fixed so tightly that to get any quantity of them one has to use considerable force to get them up. Where they grow, too, the air is very cold, so much so that I was glad to put my coat on, and there were several heavy clouds overhead, which kept the atmosphere quite moist. I followed this stream about two miles, and found flowers here and there the whole distance, and when we had gathered as many as we could fairly carry in our hands, I took a few tubers. We then retraced our footsteps, gathering as we went along some other plants which quite filled our

baskets. Passing down the west side of the mountain, we got the full benefit of the afternoon south-west African sun, and by the time I reached Cape Town I had had quite enough of Table Mountain for one day, the distance travelled being about 20 miles. I was very fortunate to ascend the mountain when the Disa was in flower, but, at the same time, I must say that there are many other plants well worth going a long way to see that blossom early in summer in this latitude, *i.e.*, judging by the numbers of dead stems to be seen among the rough Grass. I must not forget to mention that on the slopes of another mountain adjacent to Table Mountain, called the Lion's Peak, is growing the Witteboom, or Silver Tree, conspicuous for the beautiful silky whiteness of its leaves. My guide went over and brought me a branch, and told me that it was much used for church decoration.

Next day (Feb. 20) I visited the Museum and Botanic Gardens, Cape Town, and here I was introduced to Mr. Johnson, the manager of the glass department in the gardens. I was first conducted to the conservatory, which is filled with a general collection of stove plants, all in robust health and beauty, proving that a master hand was at work amongst them. In the centre transept is a large bed a trifle higher than the floor. In this some plants are planted out and some in large pots. Palms in particular are very good. But the crowning plant in this part of the house was a handsome young *Musa Ensete*, which Mr. Johnson told me he planted ten months ago, when it had only two leaves, while at the present time it has fourteen, each measuring from 18 ft. to 20 ft. in length and 2 ft. 6 in. in width. On the roof were several climbers in fine condition with the exception of one, which covered part of one side, *viz.*, *Clerodendron splendens*. This was past its best but was flowering most profusely. There were also *Telfairia pedata*, *Allamanda Hendersoni*, a fine *Antigonon leptopus*, and the old-fashioned yet handsome *Combretum purpureum*. Turning from the centre transept into the north-west wing there is a general collection of young stove or warm house plants. The south-east end or wing of this house is filled with an excellent collection of specimen plants, amongst which variegated plants were unusually bright, a circumstance which Mr. Johnson attributed to the extra light enjoyed here. I also noticed some good Ferns and a fine collection of established Orchids; some of them had finished their growth, and others were making such stout well-formed growths as I never saw before. And here in my ignorance I looked round for the heating apparatus, but found none; none of the houses here are heated, but a certain share of sun heat is husbanded, so to speak, and other matters of detail are skilfully managed by shutting out the hot, drying winds, and cold winds too, the winds here being very strong and cold at times, especially in the evening in autumn. In the show house, amongst plants in flower, was *Hydrangea Dr. Hogg*, a kind of which Mr. Johnson speaks very highly. Leaving the houses I had a look round outside; there I saw good collections of Azaleas, Camellias, Fuchsias, and Pelargoniums, and in frames *Gloxinias*, *Gesneras*, *Tydeas*, *Bouvardias*, *Poinsettias*, and *Hydrangeas*, which, I was informed, were to be grown largely for decorative purposes.

Port Elizabeth is 500 miles from Cape Town, and when we left for that port I heard it remarked by more than one that steady persevering working gardeners were much wanted about Cape Town, vegetable growers for market in particular, a fact which may be welcome to some of the stout-hearted young gardeners who are waiting in nurseries for places. I am sorry I did not come here myself twenty years ago. Crops come up here much quicker than at home; it is possible, for instance, to get three crops of Potatoes in twelve months off the same piece of land. Radishes sown on March 4 were ready to draw on the 26th out quite in the open garden; Potatoes planted in January will be lifted to-morrow (March 31), and we are now busy planting Potatoes which will be ready in July, the depth of winter here, but which is never so sharp as to destroy a *Heliotrope*.

Let me now enumerate a few plants that I have found growing here, some wild, some in gardens. First on the list is *Plumbago capensis* in endless profusion, all through the bush everywhere; even garden fences are formed of it. Next comes a green *Tradescantia* with large blue flowers, quite a pest all over my garden. *Callas* abound in the ditches, and here and there *Mesembryanthemums* are plentiful; also *Lobelia speciosa*, and another kind which I never noticed at home, with beautiful dark blue flowers borne on rather long stalks. *Lithospermum prostratum* too grows here, and its growth is quite as hard as well-ripened Rosemary branches, but it does not grow more than 3 in. or 4 in. high. I also found a dwarf *Tritoma* in flower, and we have the *Boussingaultia baselloides*, *Alonsoa incisifolia*, *Gazania*s, and some thousands of small bushes, about 18 in. high, very much resembling *Leucophyton Browni*. We have three plantations of Bananas, and three varieties which, I believe, have been planted where they are. Of flowering plants that have been planted, first on the list stands *Bougainvilleas*, three varieties; next *Oleanders*, pink and white, in company with *Gardenia*, *Weigela rosea*, *Syringa*, Sweet-scented *Verbena*, and *Poinsettia*.

Stove plants planted out here without protection thrive wonderfully well. I am going to try *Hoya* and *Stephanotis* out-of-doors; also *Dipladenia*. Aloes are not so plentiful here as at Cape Town. I have a very fine old plant of the Prickly Pear in my garden. Of this I see the farmers make hedges. I may mention that I saw a very fine old plant of *Opuntia coccinifera* in the Botanic Gardens of Cape Town, with a swarm of cochineal insects feeding upon it. I have no Palms, neither have I seen one growing wild here. I have in my flower garden three splendid plants of *Encephalartos* planted out on the lawn. The "Bast" hereabouts consists of low-growing, stunted, very hard-wooded deciduous scrub. There is very little timber here, but what there is is very valuable. We have one variety in particular called Yellow Wood, which is very durable. I find this wood to possess great heating power, judging from the short time it takes to heat water to the boiling point.

As regards my home garden, I must admit that I am favourably situated in a vale with plenty of water; I have I ought to say, several natural springs, one of which in particular has never been known to fail; and what we grow is simply the same kind of produce that we grow at home, both as regards fruits, flowers, and vegetables; the only difference is that everything grows much better here than at home, and very much quicker, and we are not required to protect anything from frost. The Melon is grown here in open fields; sometimes a spadeful of manure is put in at the time when the seed is sown, which is in August. I have just now a fine lot of *Roses*, and our *Chrysanthemums* are coming into flower.

Kraggokamma, Port Elizabeth.

J. HALL.

ANSWERS TO CORRESPONDENTS.

Artificial Bog—What is the best way to set to work to make an artificial bog in which to grow *Bamboo*, *Gunnera Osmunda*, &c. in the centre; and towards the margin *Sarracenia*, *Cypripedium*, *Pinguicula*, *Drosera*, &c.? I have a piece of ground about half an acre, with a few moderate sized Oak and Chestnut trees, and also a few evergreen shrubs thinly scattered over it. A ditch about 18 in. deep runs along one side; in this there is a very small but never failing stream of water. The ground is nearly level with a slight fall to the south, the soil a good but rather stiff loam. —E. G. L. (Most of the hardy sub-aquatic plants will thrive if planted at the edge of a stream in peaty soil, and so arranged that their roots can penetrate a constantly silted soil. To make a separate bog garden the best way will be to cut a ditch at any point of the existing ditch at a sharp angle with the direction of the current, so as to divert its course a little. The island space thus enclosed will make a capital artificial bog if the soil be taken out a little lower than the newly formed ditch, so as to allow a slight fall for the water to drain to the main ditch. At the bottom of this bed place a layer of rubble, such as clinkers, so that the water may drain through; upon the top of this lay the soil, which will be found to keep constantly moist, and bog plants will delight in it. About 1 ft. or 15 in. of soil will be enough for the large growing kinds, and a proportionately thinner layer for those of smaller growth. —G.)

The Silver Lime—The enclosed leaf and flowers were plucked from a Lime tree in full flower on the 7th inst. The foliage differs entirely from that of the Lime trees in the neighbourhood (the common variety which flowers in July). The leaves and flowers, particularly the latter, are larger. The flowers are more scented, and different in colour from the usual ones. The leaves, moreover, are very light in colour on the underside, and smooth on the upper surface. Can you name the variety? The specimens enclosed come from the park near Ely Cathedral. GILBERT R. REDGRAVE *Sunside, Muswell Hill*. [Your Lime is the beautiful *Tilia argentea*, a tree much too rare in this country. There is a good coloured plate of it in "Reichenbach's Flora Germanica," VI., t. 324. It is a native of S.E. Europe and Asia Minor. —H.]

French Marigolds—J. C. Both the yellow ground, maroon-flaked blooms sent, and also the dark self-coloured ones are the best of their kinds which we have ever seen. They show in a striking manner the good results arising from careful selection.

Twinn Cucumbers—F. G. C.—These are not uncommon, but it is seldom one sees so fine a specimen as that which you have sent.

Double-flowered Fuchsia—G. Fry.—Your seedling named Miss Lizzie Vidler is a large and fine flower, very double and striking in colour, the sepals and tube being bright crimson, and the petals violet shaded purple.

Auricula—Mr. Robert Trail's address used to be Aberlady, N. B., but he has been dead about twelve years. —J. D.

Names of Plants—E. D.—1, Probably a species of *Pleurothallis*, but too much damaged to name correctly; 2, *Epidendrum cochlearium*. —S. W. B.—1, *Coprosma Baueriana variegata*; 2, next week. —A. X. Z.—The Procumbent Pearlwort (*Sagina procumbens*), a common native weed. It is doubtful if any seedsmen could supply seeds of it. —E. H. W. B.—*Calceolaria chelonoides*. —R.—The Marsh Hypericum (*H. Eloides*). —T. T. W.—*Euonymus europæus*. —V.—*Berberidopsis corallina*. —M. B.—1, *Hypericum oblongifolium*; 2, *Aster Asperulus*; 3, *Chironia decussata*. —Deron.—1, *Adiantum Capillus-veneris*; 2, *Asplenium Ruta-muraria*.

Questions.

Heating—How many pipes should be used for a brick pit 6 ft. wide to give sufficient heat for the moderate early forcing of Cucumbers and Melons? I want to work half the length at a time. Also the best material with which to cover the bottom pipes? And would the top pipes be the better for being furnished with evaporating troughs? Also what distance should they be from the glass? —B.

Asparagus Dying from Wet—I hear of great destruction of *Asparagus* in North Wales owing to the heavy rains that fell in the autumn of 1877. Have any of our correspondents noticed a similar loss in other parts of the country? Has Mr. Godefroy Lebeuf heard of it in northern France or Belgium? —B. H.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NOTES OF THE WEEK.

Kiosque in the Regent's Park.—It is very doubtful if this is an improvement. It is certainly not so from a landscape gardener's point of view. Every brick raised on another in a public park is a nuisance in itself, and may also prevent improvements. It is a most doubtful innovation; no matter how well done, it tends to give a tea-garden aspect to a fine public garden. Granting that such things are really necessary, the proper place in which to erect them is the outskirts of the park, or even entirely outside it. Very near the structure recently put up there are two small gate lodges, with either or both of which it might have been connected. If this example is much followed in other parks we must bid farewell to their quiet beauty. Such tea-houses and the like might be necessary in the middle of Epping Forest, and would be very welcome in the desert, but they are not a necessity in parts of the parks only a few minutes' walk from houses and streets.

Pictures in Leaves.—On these fine October days one may look in vain in some of our large public gardens and parks for a good illustration of the great beauty of tree foliage in autumn, artistic attempts to show it being very rare. This is a pity, as there is no effect of the year more beautiful, even as often shown by a few native trees. The advantages the planter has in selecting trees from various countries, with the habit of dying off in rich or deep colour, are so great that he ought easily to charm us, especially in large public and other parks where there is plenty of room. But perhaps we are asking too much, especially in days when so much thought and labour are bestowed on the many edgings of the little yellow *Feverfew*, which produces such a ridiculous uniformity round the smaller plantations in many gardens, public and private, now. When Mr. Elliot found this little variety he probably never imagined how much thought and taste it would save.

Beloperone oblongata.—A flowering spray of this beautiful Acanthaceae shrub has been sent to us from Sir George Macleay's garden at Pendell Court, Bletchingly, where it has for some time past enlivened the stove by its long wreaths of pretty rosy-purple flowers. The following note respecting its merits from Mr. Green, the gardener at Pendell Court, accompanied the specimen: "Although this interesting plant is said to have been introduced from Brazil so long ago as the year 1832 it seems as yet but little known, and not so much I think as it really deserves. It is a very desirable plant and forms a compact bush about 2 ft. high. When planted in a rich border in a warm house it will flower freely for several weeks together; the flowers are of a rosy-purple colour. It also makes a neat pot plant when treated in a similar way to *Justicia speciosa*, so well known in gardens."

Philydrum glaberrimum.—This is a handsome plant now in flower in the Temperate House at Kew. The leaves are sword-shaped, nearly a yard long, leathery in texture, of erect habit, and arranged in a manner similar to that of an *Iris*. The flowers are pure white, small, and wax-like, but very numerous, placed on long, branching spikes, which considerably over-top the leaves. It is doubtfully considered a native of Polynesia. It derives its specific name from the shining surfaces of the leaves, whereas the only other species of the Order has the leaves covered in dense woolly hairs. It forms a handsome greenhouse plant, and one that deserves more extended knowledge. It is such fine plants as this, and there are many equally beautiful that flower occasionally at Kew, that need to be better known and cultivated, in order to infuse greater interest and tend to relieve the monotonous effect of the ordinary types of greenhouse decorative plants.

Australian Oranges.—A consignment of these has been received by Messrs. Howcroft & Watkins, Covent Garden, from Adelaide, which is probably the first importation of the kind in quantity that has reached this country. The experiment so far is most successful, as the fruits are in excellent condition. They consist principally of Madeira and Naples Oranges and a smaller quantity of Palermo Lemons. Various modes of packing have been resorted to for experiment; in some cases the fruits were packed in sawdust and paper; in others half paper and half sawdust, whilst the main bulk was packed in sawdust only; and these were in the best condition. On several of the fruits wrapped in paper were specks, caused probably by dampness in the paper. Forty-two days only

elapsed from the time when they were shipped until they reached Covent Garden Market. At this season, when Oranges are retailed at high prices, no doubt large shipments from Australia would prove remunerative, if similar success could be ensured as has attended this experiment.

Nepenthes villosa.—Some of the finest examples we have met with of this extremely rare and distinct pitcher plant are growing in baskets in the stoves in the York Nurseries. We counted as many as thirteen fully developed pitchers on some of the specimens, varying from 6 in. to 9 in. long, with a diameter of 2 in. to 4 in. They are pale green in colour, covered on the outside with soft reddish-brown hairs, which also cover the under surfaces of the leathery leaves. The two hairy-edged wings on the outside of the pitchers are narrow, but the unfolding ribbed margin round the aperture is unusually broad. The lid is oval in shape, and raised high above the aperture, and in mature pitchers they assume a deep crimson hue. It is also known under the names of *N. lanata* and *N. Veitchii*.

Gardening in the Parks.—This has been a wretched season for "sub-tropical plants" in the parks. Perhaps a few more such persons may teach the lesson that, as regards our public parks, it were better to attend more to hardy trees, hardy flowering shrubs, hardy florists' flowers, and the numerous herbaceous plants now in cultivation than to spend so much money in the erection of villages of costly glasshouses which are devoted to the culture of the tender exotics. These, after all the trouble and expense they occasion, often present a miserable aspect, even for the few months they are visible.

Samolus littoralis.—Conspicuous among the bog plants that are placed along the edge of the hardy aquatic tank at Kew is this pretty plant, which is now very attractive. It has slender, trailing branches 1 ft. or more in length, furnished with small narrow leaves, from the axils of which are produced the rosy-pink blossoms, which are round and about $\frac{1}{2}$ in. across. Flowering at this season, and bearing a succession of flowers for a considerable period, renders it a very desirable plant for growing with other moisture-loving plants by the edge of a pond or ditch, or in pots partly submerged. It is a member of the Primrose family, and is found abundantly in marshy places near the sea in Australia and adjoining islands. It may be easily propagated by seeds or by layers, as the tips of the branches root freely when in contact with soil.

Primula capitata.—Of this charming Primrose there appears to be several forms in cultivation, differing from each both by the size of flower heads and the intensity of the colour of the flowers. One of the finest varieties we have seen is now in flower on the rockery at the York Nurseries. The tips also are larger than the ordinary varieties, and of the deepest purple colour, which beautifully contrasts with the white mealy substance in which the flowers are invested, and the rich green of the foliage. This is certainly one of the finest Primroses we have from the Himalayas, and one that should be included in every collection.

The Showy Meadow Saffron (*Colchicum speciosum*).—We have received from Mr. Stevens, examples of an unusually fine variety of this beautiful bulbous plant (Plate lxxi, Vol. XIV, of THE GARDEN), which has for some time presented a gay appearance in his garden at Byfleet. The divisions of the flowers are considerably longer and more pointed than in the type, and moreover it possesses a brighter tinge of colour. It is to be regretted that these fine autumn-blooming bulbs are not more frequently planted than they are, for they are very welcome at this season when the majority of other hardy flowers are past their best.

A White Watsonia (*W. alba*).—A border skirting a wall near the herbaceous ground at Kew is devoted to a collection of tender bulbous plants, principally from the Cape. Amongst them is this beautiful kind which, from its large and pure white blossoms, is one of the most desirable we have seen in flower amongst them. From the old and better known *W. Meriana* it differs by the pure white colour of the flowers, which are also much broader in proportion to the length, and also by the leaves not having such shining surfaces. It is the same as we saw at Mr. Ware's nursery last year, but, owing to the unfavourable season, the plants there have not flowered this year.

Yellow Bands Round Beds and Shrubberies.—It is an odd thing that people do not see how much harm they do their gardens by putting those yellow bands of *Feverfew* round shrubberies, &c. Everywhere throughout the land you see a miserable yellow line of this poor little plant, well enough in itself, but alas! prostituted to a poor end; for any beauty or variety that might be in your border is of course neutralised by these bands. It is, if anything, more sad than the poor bedding *Perilla*, another plant spoiled by being over-planted.

The Colchicum Family.—The last number of the "Journal of the Linnean Society" is devoted to a synopsis of this family and some tribes of the Lily family, by Mr. J. G. Baker, of the Kew Herbarium. The value of this and similar treatises issued previously by the same author to plant cultivators can scarcely be overestimated, as it gives an account of all the known species and principal varieties, together with their synonyms, a matter especially useful, as there are few genera of cultivated plants in which so much confusion exists in regard to nomenclature as the Colchicum.

Early Flowering Chrysanthemums in Finsbury Park.—A good effect is made in Finsbury Park by plants of early flowering red, white, and yellow Chrysanthemums being dotted about in little mounds on the turf. They occupy a position at the foot of an undulated bank—just such a place, in fact, as would be chosen for the more tender Palms and similar plants used during summer in the sub-tropical garden. This arrangement suggests what might be done in such places by using in a similar manner some of the best hardy spring and autumn flowering plants. As in the case of the Chrysanthemums in question they might be grown in pots and plunged in the turf when commencing to bloom. Some of the best of the Michaelmas Daisies, for example, would make excellent subjects for this purpose; as would also the Japanese Anemones, and some of the hardiest of tuberous-rooted Begonias, which naturally flower best at this season of the year.—S.

The Dwarf Chionodoxa (C. nana).—In the present number of the "Botanical Magazine" this pretty species is well figured. Though the name may be new to the majority of cultivators, the plant is by no means a novelty; indeed, it is one of the oldest introduced kinds, and has been long known under the name of *Puschkinia scilloioides*, which, however, is incorrect. The plant to which the latter name was originally applied is now generally known as *P. libanotica*, or *P. sicula*. It is stated by Mr. Baker to be a native of the mountains of Crete, where it is found at an altitude of from 5900 ft. to 6000 ft. above sea-level. It is a rare kind in cultivation, and well worthy of culture. It produces its pretty lilac-blue flowers in May, but they are much inferior in point of size and brilliancy of colour to the beautiful *C. Lucilia*, which was introduced by Mr. Maw from Smyrna about two years ago.

Bouvardia Humboldtii corymbiflora.—This is one of the best white flowered plants at present to be found in the London flower markets. It is there seen in the form of neat bushy plants in 6-in. pots, thickly furnished down to their bases with deep green healthy foliage, each shoot being surmounted by a beautiful head of large snowy-white, sweet-scented blossoms. Such results may be brought about by plunging the plants out-of-doors all the summer, or by turning out the plants into beds of well-prepared soil, mulching the surface with well-rotted manure, and affording the plants liberal supplies of water both in a pure state and in the form of liquid manure during hot weather. Early in September the plants are removed to a cool airy frame or house, where those which have been kept in pots speedily open their blossoms; those which were planted out, having been duly potted and kept close for a few days until re-established, flowering a little later, and forming a succession. For associating with Chrysanthemums, Salvias, and similar subjects, few plants are equal to this *Bouvardia*, and few are more easily grown.—S.

Orchids at Chelsea.—In the Orchid houses at Messrs. Veitch & Son's nursery may now be seen in flower a fine example of the lovely *Lælia elegans* Turneri bearing eight flowers from one sheath. The blossoms are large with a brilliant amaranth lip, the sepals are of a duller hue. *L. devoniensis* is another superb kind with smaller flowers than the last, but of a colour equally as beautiful. *Cattleya bicolor* and *Loddigesi* are fine autumn-blooming kinds and ought to be more generally grown. A fine variety of the Khasian *Vanda* (*V. coerulea*) is gay with large racemes of flowers of a pale blue—a colour quite unique among Orchids. Amongst other attractive kinds are *Dendrobium formosum*, one of the finest of its section, and the beautiful Australian *D. bigibbum* with its variety *superbum*, which is, both in the size and colour of the blossoms, much superior to the type. The pretty *Lælia prestans*, a kind much in the way of *Cattleya marginata* and *Dayana*, is also finely in flower, together with other noteworthy kinds.

Ampelopsis Veitchii on the Thames Embankment.—This is very effective as seen growing over the tops of the walls along the Thames Embankment. Whilst the common Virginian Creeper has in most cases lost its leaves, at least in towns, this excellent close-growing variety will retain its cheerful and richly-coloured leaves for some weeks yet to come. Wherever bare walls in towns need to be covered this hardy climber cannot be too largely planted.—S.

Blue Cinerarias.—These are most acceptable just now, either in the greenhouse, conservatory, or window. Their flowers possess a colour which is especially scarce at this time of year, and if ar-

ranged in masses along with some of the newer kinds of zonal Pelargoniums, Chrysanthemums, &c., they would help to make a brilliant display, even at this comparatively flowerless season. We find abundance of them in Covent Garden Market, associated with Liliums, Asters, and similar plants. In order to obtain Cinerarias thus early, the seed must be sown early in spring, and the plants must be grown in small pots only.—C.

Ivy Edgings.—Some of the Ivy edgings in London are very badly managed. In the picturesque garden or shrubbery the best way with an Ivy edging is to let it alone. In the trimly kept garden to do so is ruinous. If allowed to grow and then cut in several times the effect is very ugly. They should never be allowed in this case to grow strongly at all, but be pegged closely and regularly to the ground, and neatly and judiciously cut in once a year and pinched afterwards.

The True Water Melon.—We find good examples of this Melon in Mr. Garcia's shop in the Central Avenue, Covent Garden. They are round in shape, contain black seeds, and the flesh is very juicy and refreshing; very different to the oval-shaped, green and yellow Spanish Melons, of which there is now such an abundance in the markets. It is unfortunate that the true Water Melon does not appear in larger quantities earlier in the summer.—S.

The Blight of Statues in Dublin.—Dublin is beginning to suffer under a plethora of statues; some of them costly productions. If artistic or otherwise they are of little importance; they occupy space in important and crowded parts of the city, and lead to the expenditure of money which in this case would be better employed in the cleansing of what is in various parts the most foul smelling of cities, and that of which the death rate is so alarmingly high.

The Hesse Pear.—In seasons like the present this is probably one of the most profitable of market Pears, for if all other kinds fail this is almost sure to bear a large crop. The high aromatic flavour of the fruit is its chief recommendation, for its skin is tough, and its flesh, if allowed to become at all soft, turns mealy. Bushels of this Pear have been sold daily for some time past in Covent Garden at the rate of 2d. to 3d. per lb.—S.

The Embankment Trees.—The persistent rains and winds of the season have had no bad effect on the plants along the Embankment. They seem quite as happy as under their own clear summer sun. Every second tree ought to be removed this year. Damage often begins among trees before they seem to everybody to require thinning. The trees removed should be replanted elsewhere, and many places would be the better for such fine specimens, still young enough to be removed with safety.

Brunsvigia Josephina.—A fine specimen of this noble South African bulbous plant is in flower at the Pine-apple Nursery, Maida Vale. The flower-spike is 14 in. long, bearing a large head of flowers (about seventy) of a red colour, each one on a foot-stalk about 1 ft., making the cluster over 2 ft. in width. The plant was induced to bloom by being kept without water for seven months, until the flower-spike appeared, and doubtless by following a similar course the monster bulbs which are in the country could be made to flower equally as well.

The Round-leaved Catchfly (Silene rotundifolia).—This, one of the showiest of the North American Silenes, is finely in flower on the rockery at Messrs. Backhouse & Sons' nursery, York. It is nearly allied to the Royal Catchfly (*S. regia*) and to the Fire Pink (*S. virginica*), but the flowers are somewhat inferior in point of size to those of the latter species. They are, however, of the same brilliant scarlet hue, and the petals have deeply jagged margins, so that the outline of the bloom is not so symmetrical as in the others. It is a native of the shady banks of the Ohio and in Kentucky. Under culture it thrives on a rockery in a partially shaded position.

Michaelmas Daisies.—Mr. Stevens sends a collection of Michaelmas Daisies from his well-stored garden at Byfleet, among them being a bright and good variety called *Aster coccinea*, which is probably a variety of the New England Aster. There are some very good plants among these Asters, and we hope to figure some of them and enumerate the best kinds. There are also many weedy and indistinct species in cultivation, which would be better left in their native wilds.

The Closed Gentian (Gentiana Andrewsii).—Of this singular and rare species a fine specimen is now in flower on the rockwork in the Newton Nurseries, Chester. It has thirteen flower-stems, some 18 in. in height, and is bearing 140 blooms.—E. J.

Hardy Plants from Seed.—If the seeds of such hardy herbaceous plants as Larkspur, Columbines, Bellflowers, and Pentstemons be sown as soon as they are ripe, we get good plants before winter sets in, and many of them, too, will blossom the next summer. In fact, the fresher the seed is, the more readily will it germinate.—*American Agriculturist*.

THE FLOWER GARDEN.

GIANT GRASSES.

THE Grass family, besides being eminently serviceable to man by yielding so many useful products, is also rich in the possession of numerous stately habited plants. In cold climates the majority of them are herbaceous and of low stature, while in warmer regions they frequently become arborescent, with stems of perennial duration. The graceful proportions of many render them highly effective either as isolated specimens, or associated with the varied foliage of the shrubbery; and few subjects are more suitable for planting in the vicinity of ornamental water. In gardens having

glass structures sufficiently spacious to accommodate plants of large size, several of the tropical Grasses might be grown with advantage, where their slender drooping foliage would have a striking effect. The hardy perennial species thrive best in a light moist soil, to which an occasional mulching of leaf-mould or decayed manure is added. The annual kinds, in order to obtain a fine development of their foliage, require to be sown early and treated similar to tender annuals before planting out. The places they are intended to occupy during the summer should be previously pulverised and enriched, and during the dry season they require frequent waterings, but a constantly wet condition of the soil should be avoided, or otherwise the foliage becomes sickly, and the inflorescence perishes before it emerges from the sheaths. The perennial kinds with creeping rhizomes are increased chiefly by division or by offsets, or, in the case of the branching sorts, by cuttings. The Sugar Cane, however, which rarely branches, may be propagated from the latent buds situated at the joints of the stem. Those that have a tufted rootstock are best increased by seeds, as they can seldom be divided so as to leave sufficient roots to sustain life on the detached portion. When it becomes necessary to transplant large clumps of the tufted kinds, such as *Glycerium* and *Arundo conspicua*, the places where they are to be planted should first be prepared so that they may be replanted with as little delay as possible, and in lifting them great care should be taken to keep the main body of the roots intact. The most suitable time for transplanting is between the middle of March and the end of April, at which season their growth commences and continues until the flower heads are developed. After this the plants remain inactive, and no more young foliage is produced until the following spring. Success rarely attends their removal at any other season, unless the soil be retentive and the greater part of the roots remain uninjured in the operation; but even then, the plant suffers from the check, which invariably causes the succeeding crop of flower-heads to be small.



The Japanese Eulalia (*E. japonica*)

Though ornamental Grasses are frequently recommended as eligible water-side plants, several, if planted in such positions, would require to be raised on mounds, so as to prevent their roots from coming in contact with a wet subsoil, which though it might be beneficial to them during summer, would, if combined with severe frost, prove fatal to them in winter. The flower heads of those intended to dry for winter bouquets or room decoration should be gathered just before flowering, as when left until later the spikelets break off in those kinds that have the florets connected by joints, and in the process of drying they should be kept in an erect position, so as to allow their branches to remain open, and not suspended head downwards, as other Everlastings require to be. The dead flower stems should be removed in the autumn, but the basal

tuft of leaves should in all cases be left until spring; though, should it succumb to the severity of the winter, it affords protection to the crowns. The dead portion, however, should be cut away previous to the young growth commencing, but not too closely—the stout bases of the leaf should remain permanent. Where the drainage is good, a covering of leaves is all that is necessary to protect the tenderer of those that die down in winter; but the evergreen sorts, when not sufficiently hardy to withstand the winter fully exposed, may be protected with mats fixed over stakes arranged in a conical form.

The number of Grasses at present in cultivation which exceed the height of 5 ft. is large, and among them there exists a great diversity in foliage and habit, the most desirable of which are included in the subjoined selection:—

The Bulbous-rooted Panicum

(*P. bulbosum*).—The Panicums are widely distributed in all except the very coldest climates. This species is a native of Mexico, and attains the height of from 6 ft. to 8 ft., and has light green, narrow, arching leaves upwards of 2 ft. in length. The flower-stalks, which rise well above the foliage, bear

conical branched clusters, which are from 12 in. to 15 in. in length. The branches have an upward tendency, and the spikelets are of a reddish-brown. The bases of the stems are swollen, a character which gives rise to the name. It requires a light and rather dry soil.

Large Panicum (*P. maximum*).—This has more slender foliage than the preceding, but under similar conditions exceeds it in height. The leaves are glaucous beneath, and are produced very near to the panicles, which have hair-like drooping branches with light brown spikelets. This is also known as Guinea Grass.

Plaited-leaved Panicum (*P. plicatum*).—Though sufficiently hardy to live in the open air during summer, it requires

a stove temperature to develop its superb foliage. Under these conditions it attains the height of from 6 ft. to 7 ft. Its leaves are lanceolate, and from 12 in. to 15 in. in length, and about 3 in. broad in the widest part, with prominent ribs. The foliage is covered thickly with dense short hairs, which causes it to feel soft to the



Large Horse-tooth Maize (*Zea Mays* var.).

touch. Each leaf is ornamented with a distinct white line down the centre. The panicles are slender with spikelets of a greenish-white.

Deep-veined Panicum (*P. nervosum*) is a taller-growing plant than the preceding, with much longer and narrower leaves, of a brighter green. The plant is quite destitute of bristles, but the margins of its leaves are armed with fine teeth. In the young state this and the preceding make useful decorative plants.

Millet Grass (*P. miliaceum*).—This is a showy annual Grass, growing to the height of 5 ft. to 7 ft., with a stout, branched, hairy stem. The leaves are of a light green, with wavy margins and recurved points. The panicles, which are produced both terminally and laterally, have numerous slender pendulous branches, bearing a great weight of roundish spikelets, which are of a very ornamental character when ripe. It is a native of East India, and requires a well-drained soil.

Japanese Eulalia (*E. japonica*).—The typical plant, as shown in the figure, frequently attains the height of 7 ft., and forms a fine tuft of erect stems, which are furnished with foliage from the ground to the extremities. The leaves, which are from 3 ft. to 4 ft. in length, and rather less than 1 in. in breadth, are rigid and channeled with a conspicuous white groove down the centre of each. In colour they are dark green, with a purplish tinge above, and glaucous green with a few silvery hairs beneath. The flower-heads are fingered, and dark brown when they emerge from the sheaths, but as the numerous hairs around the spikelets expand, they become grey and feathery. The varieties of this plant are not so robust as the type, but they are nevertheless quite hardy. The striped form has very often in addition to the white lines, others of a purplish tinge, and has usually very dark purple sheaths. The yellow-barred variety, *E. zebrina*, may prove to be specifically distinct from the foregoing, as it differs in having a more tufted habit of growth, and hairy leaf sheaths with no traces of a purple tinge. They may be used with advantage either as stove or conservatory plants, where their variegation, from being protected, is much more clearly defined.

Erect Erianthus (*E. strictus*).—This is an erect-growing plant rising to the height of 6 ft. Its leaves are linear, and from 2 ft. to 3 ft. in length, with recurved points; they are of a dull purplish-green, with a white or sometimes violet midrib. The stem and leaf-sheaths are of a dark purple, and the panicle, which are dark brown and oblong when first produced, afterwards expand and change to a cinnamon colour. It is a native of the United States.

Slender Erianthus (*E. Ravennæ*).—This forms a tuft of slender, reddish foliage, above which arise numerous erect flower-stalks bearing an inflorescence similar to the *Eulalia*. The leaves, which taper to both extremities, have a whitish, grooved midrib, and are clothed with silky hairs at the base near the sheaths. It requires a warm, light soil, and in favourable situations it reaches the height of 6 ft. It is a native of South Europe and North Africa.

Broad-leaved Gymnothrix (*G. latifolia*).—This is a most luxuriant Grass, forming large tufts of dark green foliage. The stems and leaf-sheaths are of a rich purple. The leaves are from 2 ft. to 3 ft. in length, and from 1 in. to 2 in. in breadth, and droop gracefully. The panicles, which are rarely seen in our climate, are of a purplish-brown, with drooping branches. It is a native of La Plata.

Perennial Millet (*Sorghum halepense*).—This is one of the most accommodating of hardy Grasses, thriving almost anywhere. It grows to the height of 5 ft. or 6 ft., with erect stems, and copious light green foliage. The leaves, which spread horizontally, have a white midrib, wavy margins, and drooping points. The panicles,



Great Reed Grass (*Arundo Donax*).

which are reddish-brown, are very conspicuous, and rise above the foliage. It blooms in October, and is indigenous to South Europe.

Dawa Corn (*Sorghum vulgare*).—This annual is one of the principal grain plants of Tropical Africa, and grows to the height of 5 ft. to 6 ft. It has a simple, erect stem bearing numerous light green, channeled leaves, and a terminal tufted panicle. The grain is enclosed in shining brown husks, which give the plant a singular appearance.

Maize or Indian Corn (*Zea Mays*).—Among the annual Grasses this deserves a prominent place, on account of its stately habit and robust, wavy foliage. When well grown the stems reach the height of 6 ft. or 7 ft., and are terminated by a plume of male flowers. The forms of this plant are very numerous; the variegated ones are employed extensively for outdoor decoration, but it varies considerably more in the form and colour of its grain. Our figure represents the Large Horse-tooth Maize, so called from a fancied resemblance of its grain to a horse's tooth. It however bears the largest spikes of corn, and attains the greatest dimensions of any of the varieties.

Luxuriant Reana (*Reana luxurians*).—This, although a perennial in the Tropics, where it is grown as a fodder plant, is only of annual duration in this country, and thrives but indifferently when grown in the open air, except in very favourable localities. In a stove temperature it forms a noble object, often attaining the height of 15 ft. Its leaves, which are usually from 3 ft. to 4 ft. in length and 2 in. in breadth, are light green, wavy, channeled, and recurved. The flower-spike, which resembles that of the Indian Corn, is produced in the axils of all the upper leaves. The stigmas protrude beyond the sheaths, and resemble red, silky tassels.

Gigantic Jungle Grass (*Androscepi gigantea*).—This is a stately Grass, common to the islands of Polynesia. It forms a dense tuft of bluish-green foliage, which is from 8 ft. to 10 ft. in height. The leaves are from 6 ft. to 8 ft. in length, exclusive of the sheaths, which clasp each other at the base, and present a similar arrangement to the leaves of an Iris; they are deeply grooved and very rigid, with finely serrated, sharp edged margins; the stems send out a number of lateral branches, which produce a quantity of aerial roots at their point of attachment. The inflorescence resembles a gigantic cluster of Oats intermixed with scaly leaves. It is not sufficiently hardy to plant out-of-doors, but it is very attractive under glass.

Job's Tears (*Coix Lachryma*).—The small, roundish, slate-coloured beads, known as Job's Tears, are the fruits of this plant. It is a stout, erect-growing Grass, with light green, grooved, drooping leaves, from 2 ft. to 3 ft. in length. The stems often attain to a great height; in the variety *C. gigantea* they sometimes measure 20 ft. The leaf sheaths and stems are covered with a white, mealy powder. If treated as a tender annual it thrives in the open air in summer. Its flower-head consists of racemes of three to five spikelets, which hang from the axils of the upper leaves.

Sugar Cane (*Saccharum officinarum*).—None of the Saccharums are sufficiently hardy to withstand our winters, but those enumerated here make fine ornaments in the open air during summer.

The species under notice grows to the height of from 15 ft. to 18 ft. in a stove temperature. Its leaves are arranged alternately on opposite sides of the stem, as in *Arundo Donax*. There are several distinct forms with variously coloured stems, some of which are of a dark purple, while others are distinctly striped. In a young state, they are all attractive on account of their graceful arching foliage.

Batavian Sugar Cane (*S. violaceum*) is a densely tufted plant with purplish or violet foliage, with a conspicuous white groove down each leaf. It is a much dwarfier plant than the preceding, seldom exceeding 7 ft. or 8 ft. in height. It thrives best where its roots can be immersed to a depth of a few inches in the water of a stove tank.

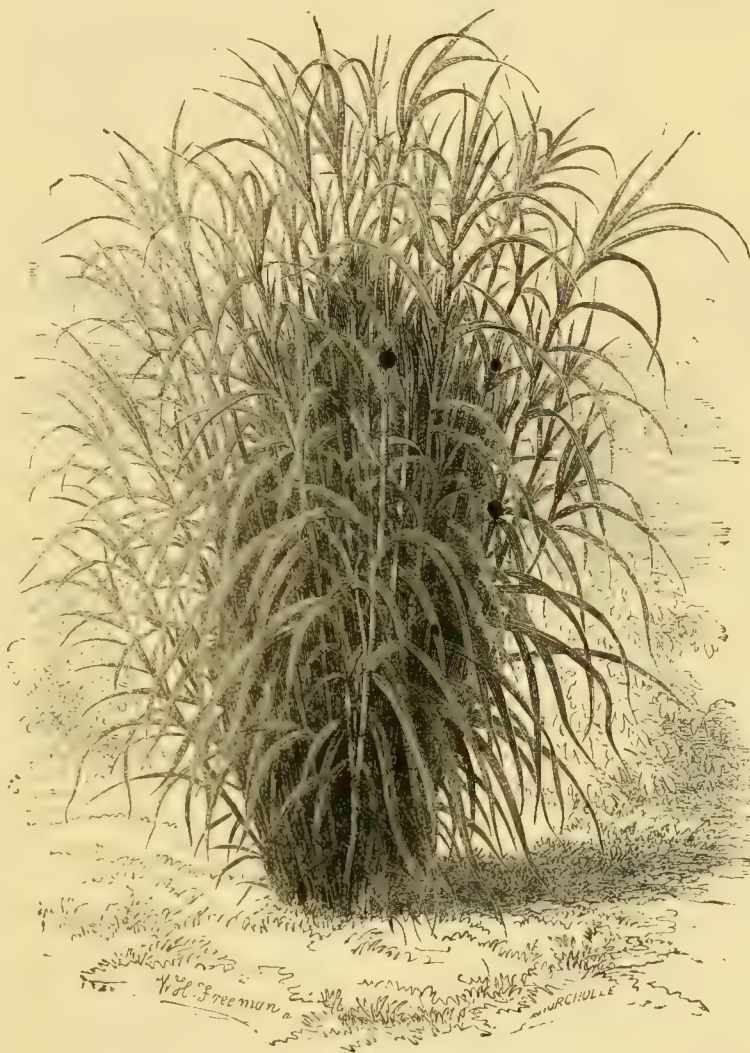
Egyptian Sugar Cane (*S. aegyptiacum*).—This, as will be seen from the annexed engraving, is a plant of elegant appearance. It attains the height of 6 ft. or 8 ft., and is of similar habit to the preceding, but its foliage is of a brighter green, and more stiff and hairy. It withstands the mild winters of Southern Europe, but it is too tender to bear the severity of our climate; it might, however, be employed in the open air in summer and receive the protection of a house in winter.

Pampas Grass (*Gynerium argenteum*).—Several varieties of this well known Grass have been introduced or raised at home which are superior to the typical plant. This kind bears male and female flowers on separate individuals; of the white varieties the female plant is a more desirable one than the male, as its plume is of a more silky texture, and expands after drying, whereas the male cluster is more stiff, and closes in the dried state. Of the pink or carmine varieties, the male plant exceeds the female one in dimensions. The variety *G. nanum* is a very desirable one, as it is more compact in habit, blooms earlier, and partakes of the character of *Arundo conspicua*.

Early-flowering Pampas Grass (*G. jubatum*).—This is a

recently-introduced plant from Chimborazo, and is not quite so hardy as *G. argenteum*. Its panicles are of a creamy-white, and it blooms early. In habit it is similar to the foregoing, but its foliage is of a brighter green and its sheaths are pubescent.

White Rosseau (*G. saccharoides*).—This produces the finest flower-spikes of any known Grass of the herbaceous type, as they frequently measure 5 ft. in length, are somewhat conical in outline, and are about 1 ft. in diameter at the base, consisting of numerous whorls of grey feathery branches, which have a tendency to droop to one side. It is a true aquatic, but quite different in character from *G. argenteum*; instead of forming a dense tuft of leaves at the base, it partakes of the character of *Eulalia japonica*, and reaches the height of from 12 ft. to 15 ft. Its leaves are narrow, deeply grooved and recurved, and have sharp toothed



Egyptian Sugar Cane (*Saccharum aegyptiacum*).

margins. It is a native of the West Indies and Brazil, and for its full development it requires a stove temperature.

Great Reed Grass (*Arundo Donax*).—This and the following are the most distinct of our tall hardy Grasses; the glaucous hue and peculiar arrangement of their leaves, combined with their robust character, render them strikingly effective objects, especially if situated so as to have a background of darker foliage. This species, when well grown attains a height of from 8 ft. to 10 ft. It rarely blooms in this country, owing to its growths being seldom matured. The variegated leaved form is a more delicate plant, and thrives best indoors.

Mediterranean Reed Grass (*A. mauritanica*).—This is a more slender plant than the foregoing, and produces more young growth from the base; it has the peculiarity also of becoming variegated when removed from a wet situation into dry poor soil. Its panicles are larger than those of the preceding, being as much as 2 ft. in length and from 8 in. to 10 in. in breadth, with spreading branches and greenish spikelets. It is a true aquatic Grass, but not quite so hardy as *A. Donax*.

New Zealand Reed Grass (*A. conspicua*).—This, though not quite so hardy as the Pampas Grass, is more suitable for some places on account of its dwarfer growth. It also blooms as early as August, a character which greatly enhances its value. It requires a well-drained, rather dry soil, and in this respect, as well as in outward appearance, it differs from its congeners. C. M.

AMERICAN LILIES.

WE have, east of the Mississippi, four admitted species of native Lilies, three of which are common throughout the Northern States, and one southern species. These four are naturally divided into pairs, as in two of them, the parts of the flower which commonly pass for petals, are narrowed at the base to form a sort of stem, or claw, as it is termed botanically. These two are the "Wild Orange-Red Lily," (*Lilium philadelphicum*), and the "Southern Red Lily," (*L. Catesbaei*). In these the stems are about 2 ft. high, the flowers are erect, and bell-shaped; the first named has two or three on the stem, reddish-orange with dark purple spots on the inside; the other has a single flower to the stem, which is almost scarlet, and spotted with purple on a yellow ground. The other two have nodding flowers, with the parts not narrowed below, but are turned back, like those of the "Turk's Cap" Lilies of the gardens. Of these two the "Canada," or "Wild Yellow Lily," (*L. canadense*) is from 2 ft. to 5 ft. high, with a few orange-coloured flowers, with brown spots. The "American Turk's Cap Lily," (*L. superbum*), grows 3 ft. to 7 ft. high with a pyramidal cluster of many—sometimes 20 to 40—flowers bright orange-red in colour, with many dark purple spots on the inside. Besides these, there has been described the "Carolina Lily," (*L. carolinianum*), with few and yellow flowers, but otherwise so like the last named, that it is usually regarded as a variety of it. Of these wild Lilies, the first two are most generally found in sandy ground, while the other two grow in rich moist meadows and low grounds. With the exception of the southern species, they are not at all rare, and some, if not all, may be found in most localities. To those who are fond of cultivating flowers, these offer many attractions; the bulbs may be transplanted with great ease, and in the rich soil of the garden, where they have not been forced from necessity to struggle against a crowd of other plants, they present a luxuriant growth and an abundance of flowers, such as is rarely met with in a wild state. Not only do they vary considerably in the number of flowers and their size, but they present a marked variety in the colour, in the wild state. Our Lilies puzzle botanists. We have stated as to the last one, named *L. carolinianum*, that it was regarded as distinct from the "Turk's-Cap" (*L. superbum*) by some, while it is, by our best authorities, placed as a variety of that. But a greater difficulty presents itself; plants will occur so evenly between the "Canada Lily" and the "Turk's-Cap," that it is difficult to say to which they belong, and some doubt if the two are really distinct, and if the main difference is not after all one of luxuriance of growth. When it comes to the question of colour, the wild plants show the greatest variety. The "Wild Turk's-Cap" is usually described as having orange-red flowers; we have seen them when scarlet, and a deep scarlet would best describe the colour. We recently saw in the grounds, of Woolson & Co., Passaic, N. J., a row of this Lily (*Lilium superbum*) containing some hundreds in full bloom. These were from bulbs dug up in the country round about there, and the variety they presented was most interesting. Some plants were not over 2 ft. high, while others were nearly 6 ft. and in the number of flowers to the stem, the size of the individual flowers, and especially in their colour and markings, there was sufficient variety to induce some botanists to make many species. While we had seen here and there a few bulbs of our native Lilies under cultivation, we never before

saw them by the hundred, and we were more strongly than before impressed with the great beauty of these natives of our meadows and bogs, and the inducements they offer to lovers of flowers to bring them into cultivation. By careful selection, marked varieties may be obtained, and to those who would experiment with seedlings, and especially in hybridising, they present a field in which the amateur may reap rich results. Upon the western side of the continent there are species of Lilies resembling ours, and besides these several, such as the Washington and Parry's Lilies, quite unlike our eastern kinds, and more resembling the exotic species. Among those closely related to our eastern Lilies is the Columbian Lily (*L. columbianum*). This, which has been thought to be merely a form of our Wild Yellow Lily (*L. canadense*), is now regarded by Mr. Sereno Watson, who has given special study to the genus, to be a good species. It is the common Lily of the northern portions of the Sierra Nevada, and is, as yet, but sparingly in cultivation. It grows from 1 ft. to 2 ft. high, and has whorls of very distant leaves. Its flowers, from two to five in number, are very small, being only about 1½ in. across, with the parts turned strongly backwards; orange yellow freely spotted with purple. This is an exceedingly neat and interesting dwarf kind, which we hope may soon be in general cultivation.—*American Agriculturist*.

NEGLECTED HERBACEOUS PLANTS.

Spiræa Aruncus.—This old-fashioned plant is seldom met with now-a-days; but I was agreeably surprised to find that a young lady, who took the first prize for dinner-table designs at a horticultural show in one of the most fashionable towns in the kingdom about a dozen years ago, had made this *Spiræa* the principal feature in the design, and it was at the time very generally admired, and by many supposed to be something new. It is, however, a very old plant, but one which is often pushed aside into some obscure back-ground. It well deserves being brought forward. It grows about 3 ft. high, and looks well in the distance as well as on closer inspection.

Spiræa venusta.—This is also but seldom met with, although it well deserves attention, as it is of a beautiful rosy-purple colour, and I have always found it to thrive and do well, while I never could succeed with *S. palmata*, which I suppose was intended to supersede it, but either the soil or something else did not suit it here, so I lost it two or three times, and ceased trying to grow it, while *S. venusta* always flowered and looked well. It is rather taller than *S. Aruncus*, and in some respects resembles the wild Meadow Sweet, except that the colour, as above stated, is rosy-purple.

Spiræa filipendula plena.—This, I presume, is still generally cultivated, as it is one of the prettiest plants we have, and its foliage is also neat and pretty. It is not so tall as the others just named, being about 18 in. or thereabouts in height. It is a fine plant from which to cut flowers, and one that is, while growing, neat looking and ornamental.

Golden-leaved Spiræa Ulmaria.—Many years ago I had a variety of the common Meadow Sweet with foliage beautifully marked with gold-coloured veins or markings, which it seemed to retain year after year with more regularity than many variegated plants, and this peculiarity of its foliage rendered it a fit companion for exotic plants. Although it was quite hardy, and used to come up regularly in the common ground, it was also a favourite in pots. I do not think it is very common as I seldom meet with it elsewhere.

Phlox Van Houttei.—This, though perhaps not so old as some of the plants mentioned above, is, nevertheless, not a plant of recent introduction, as I was acquainted with it about 1849, and I think it has since received the attention which it deserves, being neat in habit and not too tall; in fact, it seldom grows more than 2 ft. high, and the flowers are as correctly striped red and white as the choicest Carnation ever is when in its best form, while it is so prolific of flower, that I think it must have sprung from *Phlox omniflora*, which is but seldom met with now-a-days. Its flowers are beautiful in bouquets, and altogether it is a plant that well deserves cultivation.

Double Yellow Rocket.—This, I believe, is not a Rocket at all—certainly not a *Hesperis*; but in olden times it used to be called the Yellow Rocket to distinguish it from the white and purple, both more plentiful fifty years ago than they are now. It seldom grows more than 1 ft. high, and, I believe, likes moisture. It is well worth looking after.

White and Yellow Batchelor's Buttons.—These, though sometimes met with, are not so plentiful as they ought to be, the white especially being very scarce, while both are, or rather were,

great favourites with our grandfathers, as were also several other plants which I cannot at the present moment call to memory; but I am pleased to see that an interest in such matters is reviving.

AN OLD GARDENER.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Anemone japonica Honorine Jobert.—For autumn there is no more useful plant than this, and all gardens, and green-houses too, should contain large stocks of it. If planted in a rich soil, and left undisturbed for two or three years, it grows into large masses, throwing up hundreds of beautiful white flowers on tall, slender, branching stalks, and remains thus with a continual succession of bloom, for a whole month. For greenhouse purposes we keep a stock of good-sized plants of it in the reserve garden, potting them when the buds are well formed, and then place them in the conservatory or cool greenhouse, where they bloom very freely, and are even more beautiful than those in the open ground. By a little arrangement it is easy to have these Anemones in flower in the conservatory for nearly two months. For those who do not know this lovely flower, I would describe it as being like a very large Wood Anemone, growing from 3 ft. to 4 ft. high, and bearing from a dozen to twenty flowers on each stalk. As regards purity and beauty it is fit for a bride's bouquet. For dinner-table decoration it is also exceedingly useful, either in pots or in the shape of cut blooms. The latter last fully a week in water if cut when freshly opened. It is perfectly hardy, needs no skilful cultivation, and is cheap. We tried a long line of this Anemone planted alternately with *Gladiolus brachylepis*, but the *Gladiolus* was over before the Anemone was in its full beauty.—BROCKHURST.

Mixed Herbaceous Beds.—There has been no grander feature in the grounds at the Crystal Palace this year than the large mixed herbaceous beds on the lower terrace garden. They are composed of fine masses of the scarlet *Tritoma Uvaria*, the showy yellow-flowered double *Helianthus*, big bunches of *Phloxes* and *Asters*, and specially the marvellously fine heads of the beautiful magenta-coloured *Sedum spectabile*, which makes such a grand decorative plant at this time of the year. Beside these noble mixed masses rigid designs in Golden-feather and clipped *Mentha* are tame and formal. Of tender plants, the beds of *Dahlias* are also most effective; and certainly worthy of copying in every large garden are the very pleasing combinations in dwarf ornamental shrubs, that are beautiful not merely to-day, but permanently so for many years to come.—A. D.

Hypericum calycinum under Trees.—The notice in *THE GARDEN* (p. 276) of the Fern glades in Penrhyn Castle reminds me of the manner in which this St. John's-wort was treated in the same place some years ago. All the bare places and what would otherwise have been brown unsightly patches under the trees, from the hedges up to the Castle, were planted with this *Hypericum*. An old name (at least, a local one) for this plant is Park Leaves, and certainly in those days, as seen from the approach, it gave the park quite a character. No shade seems too deep for this plant to thrive under, and, to say nothing of its very conspicuous handsome flowers, its broad masses of ample foliage, growing where a Moss would scarcely exist, render it valuable, even more so than any for such places. This plant is also known in the North of England as the Rose of Sharon, and it is just the plant adapted to make the wilderness blossom as the Rose.—THOMAS WILLIAMS, Ormskirk.

The Nymphæa alba rosea (more correctly, it seems, *N. alba rubra*), figured in our last volume, has been named *N. Caspary* by M. Carrière, who has also published a figure of the plant in the "Revue Horticole" (1879, p. 230). The plant has had a variety of names; thus Prof. Caspary, of Königsburg, called it *N. alba sphærocarpa rubra*, and M. Duchartre, *N. sphærocarpa rubra*. Whatever name it bears, it is, as M. Carrière observes, a very fine plant. According to the account given, it is a variety of *N. sphærocarpa*, a plant nearly related to *N. alba*, but distinguished by its more rounded fruits, the present variety differing in the carmine rose colour of its interior petals. It is described as being vigorous and hardy, with large, slightly undulated leaves almost entire at the edge, and attached by red petioles; the peduncle large, ferruginous, the buds red, the flowers tender rose, often somewhat veined with violet. It commences to flower in June, and continues flowering almost until the frosts. It was discovered in a lake near to Tweden, village Kamma, near Nerika, in Sweden, in 1856. According to M. Frébel, it is a very floriferous plant, commencing to bloom eight or ten days before *N. alba*, is completely hardy, and requires the same culture as *N. alba*. He adds that it reproduces itself from seeds, but M. Carrière wisely observes that those who wish for a perfectly true stock should

increase it by division, reserving the seeds for the production of varieties, of which some might chance to be deeper in colour than the parent. It will be a great acquisition for the embellishment of our ornamental waters.—"Florist." [Of this a coloured figure is given in *THE GARDEN*, Vol. XV., p. 516.]

Chilian Beet.—This has been most effective during the present season, making unusually vigorous growth, and is extremely well coloured, varying from creamy yellow to a brilliant red in the stalks. When planted as an edging to beds of sub-tropical plants of taller growth, such as *Canna*, *Castor-oil* plants, &c., they are much more effective than in a mass, as the leaf-stalks are then seen to advantage, being much more highly coloured than the leaves. Being comparatively hardy, they continue to be effective plants after the first slight frost has cut down their more tender companions.—J. G. L.

Japanese Privet (*Ligustrum japonicum*).—This makes a most useful shrub for single specimens on Grass or in the shrubbery borders. It is now in fine bloom with us, its deep green shining foliage shows its load of pure white flowers to great advantage. Beyond losing some of its leaves it withstood the last severe winter with impunity, and should therefore prove hardy, except in extremely unfavourable situations.—J. G. L.

Acanthuses in the Wild Garden.—I find these handsome foliaged hardy plants quite at home in the "wild" garden, for, when once planted they soon extend into large clumps and become quite naturalised. For clothing banks, &c., they are admirably adapted, as they grow freely in any kind of soil, and luxuriate in sunshine or shade, so that they adapt themselves to any position. The bold yet gracefully formed foliage being of an evergreen character, and cut down only by severe frost, renders them most useful plants for giving a cheerful look, when plants of a deciduous character have died down.—J. GROOM.

Erigeron mucronatum.—This pretty Composite, which is also known as *Vittadenia triloba*, has proved itself an excellent plant for growing on old walls. It thrives equally well as *Erinus alpinus*, &c. Self-sown seedlings have appeared in several places as much as 50 ft. away from the parent plant. Such a continuous blooming plant will be very welcome I am sure in such positions. *Jamesia americana* also appeared on the back wall of a low cold pit as a self-sown seedling, and grew into a vigorous plant, evidently quite at home in the Moss and old mortar between the bricks.—T. SMITH.

The Old Double White Rocket.—"R. D." (p. 295) ought to feel proud of his plant, the true old double white Rocket—a truly beautiful flower fast becoming extinct. This plant has always been pre-eminently a cottage garden flower, and fifteen or twenty years ago its cultivation, and consequently its sale, among the cottages in many parts about here was enormous, many of them paying their rent with it; but it disappeared all at once, and I knew not where a plant could be obtained. It is a very old plant, having been introduced into England 300 years ago. Strange to say the type (*Hesperis matronalis*) is seldom or never met with—I mean in the single state. Whoever may possess this plant and may wish to increase it, the secret lies in not letting it flower. As soon as the flower stem is formed, pinch it off; laterals will spring from the base, and these, with the heel retained, will make the future plants. What is known as the French or Giant variety appears to be a different kind, and the crimson and purple sorts are apparently forms of it, though I believe *H. matronalis* is purple. There was at one time a green-flowered variety in existence—of course, like the double white in question, a monstrosity. However, seeing the plant has sported from purple to white and double white, it is possible that "R. D.'s" new dwarf purple and new crimson may be reversions to the type as regards colour. There is also what is known as the yellow Rocket, a double-flowered form of *Barbarea vulgaris*, a handsome plant, but not a Rocket; and what is known as the red Rocket, another pretty neat plant, is *Lychnis viscaria*, also with double flowers.—THOS. WILLIAMS, Ormskirk.

Schizostylis coccinea.—This very useful plant should be grown in quantity wherever cut flowers or decorative plants are in request during the winter months. It is perfectly hardy, and will flower out-of-doors in a mild autumn, but to obtain the flower in its full beauty it should have some protection from inclement weather. A quantity was planted out here in spring in bunches in well-prepared soil; they are now ready to lift for potting or furnishing boxes, stands, &c. They are very accommodating plants, as they may be safely transplanted at any time. If, when planted close to a wall or fence, some temporary protection can be given from severe frosts, a good row will yield a large quantity of spikes for cutting purposes. As bright colours are so valuable during the dull days and not procurable from many outdoor plants at that season, it is surprising that this beautiful Irid is not more generally grown.—JAMES GROOM, Linton.

Aponogeton spathaceum var. junceum.—In the note (p. 299) on this plant having flowered at Kew, no notice is taken of what I consider its most peculiar feature. The flowers are borne on erect stems, 3 in. or so above the water, and as soon as fertilisation has taken place, the stems bend over like a shepherd's crook, so as to place the flower head below the surface. Something analogous occurs with the commoner plant *A. distachyon*, the flowers of which are often thrust up above the water's surface, but as soon as fertilisation has taken place, the stem sinks altogether, so as to bring the flower-head down to just below the surface. This fairly illustrates the fact that all plants possess the power of adapting themselves to their peculiar circumstances. *A. distachyon*, being a deep water plant, and so able to accomplish its end in one way, whereas *A. spathaceum*, being a shallow water plant (its point of immersion being about 2 in.), cannot so act, and so adopts a different course.—T. SMITH, *Newry*.

—The singular twisted appearance was shown fairly well in the woodcut; in the absence of which allusion would have been made to it. The peculiar tendency of the flower stalks to submerge after fertilisation is by no means a permanent character, as I have had ample means of observing in the scores of plants that have flowered at Kew. I have obtained matured seeds from quite erect stems which showed no tendency to turn whatever. The limit of the depth also is by no means a fixed one, though I found that a depth of 2 in. was the most suitable depth during summer, after experimenting with several hundred plants. In winter I found that those which were wholly submerged kept in the most thriving condition, whilst those in shallow water died down to the surface. It is found naturally in very wet places, growing amongst Grass and other herbage, which no doubt protects it very considerably.—W. G.]

Sweet Peas in Pots.—The finest Sweet Peas in pots that have yet come under my notice were sown very early in the year in 8-in. pots, and, when grown to the size when more space was required, they were shifted on into 13-in. pots, and had stakes about 5 ft. high placed round them for support. As soon as the leading shoots pushed outside the stakes the points were nipped out, and it was this pinching, with the copious supplies of liquid manure applied to them, that induced them to grow so strong and produce a thicket of flowers. When Sweet Peas are well cut back during summer, several shoots will spring from the point where the one shoot was cut from, almost causing the plants to assume a somewhat perennial character, and if well supplied with water, with an occasional dose of diluted liquid manure, they are less inclined to produce seed-pods, and consequently there is nothing to exhaust them or check flowering until the cold autumn nights come. By the robust growth and abundance of flowers they produce this season, it is evident that they are moisture-loving subjects.—E. HOBDAY.

Campanula pyramidalis Hardy.—I am glad to see attention drawn to this fine herbaceous plant (see p. 298), and I can endorse the statement that this noble Campanula is perfectly hardy. It has been here—in North Yorkshire—in an open border for two years, and is now flowering profusely, many of the plants being 5 ft. in height. The *Astilbe rivularis* makes a fine background for this noble flower. It has a fine effect when planted in lines, with a central of one white, and blue on each side. Planting deeply injures the fleshy roots of this Campanula. I plant it shallow, and put a spadeful of sand over the roots.—CHAS. DONALD, *Stokesley*.

Rosa Regellana.—A beautiful feature in this Japanese Rose which I have not seen alluded to is the change of the leaves in autumn to a bright golden hue, a specimen of which I enclose. I see that the leaves of another Japanese plant (*Aralia japonica*) are about the same colour.—GEORGE F. WILSON, *Heatherbank, Weybridge*. [The leaves sent are indeed very beautiful, and where large bushes of this kind are seen they must be highly effective.]

Browallia elata in Open Borders.—Although usually grown as a pot plant under glass this is useful for open borders, as blue flowers are comparatively few. I planted out many in an exposed situation, and although the season has been anything but favourable for plants of a tender nature, they have grown away freely, and continued to produce their pretty blue flowers in abundance. As it is easily grown and very floriferous, I can recommend it either for growing in pots or for borders.—J. GROOM, *Linton*.

The Alpine Snapdragon (*Linaria alpina*).—This charming little plant has been flowering almost incessantly for the past three months on the rockwork in the Newton Nurseries, Chester, where it has been the admiration of all who have seen it. On large rocks, where this little gem may be left to seed year after year, it would form a most pleasing and attractive feature.—E. J.

Sedum Telephium purpureum.—This Stonecrop has produced a fine mass of bloom during the present autumn; never have I seen the heads finer or the colour richer. Apart from its great beauty as a decorative plant, it is specially interesting for the attrac-

tions the flowers offer to numerous insects, including gaudily-hued butterflies, which are doubtless attracted by the gay flowers.—A. D.

Tricyrtis hirta nigra.—A good quality in this plant, which is noticed at page 298, is, that it blooms about three weeks earlier than the type, and therefore in time to escape frost; it is also a free seeder. With us *T. hirta* proves perfectly hardy, but the blooms are annually damaged by frost. It makes a capital orchard house plant.—GEORGE F. WILSON, *Heatherbank, Weybridge*.

Hyacinthus candicans.—Some very large bulbs of this beautiful Hyacinth have proved themselves to be quite hardy in the Newton Nurseries, Chester. They were left out in the open air during the whole of last winter in pots plunged half their depth in coal ashes. On one plant I counted some forty flowers and buds, the stem being over 5 ft. in height.—E. J.

THE KITCHEN GARDEN.

CULTURE OF WINTER GREENS.

IN the winter season we rely mainly upon the Cabbage tribe to furnish our supply of fresh vegetables. Generally our climate enables us to enjoy green vegetables the whole year through, for we seldom experience a winter severe enough to destroy them, and I have often thought that the advantages which we derive in this respect are not fully appreciated; and yet we seldom find that ample provision is made in order to secure a supply of such kinds as Brussel Sprouts and Savoys. This shortcoming is especially noticeable in small gardens. In large establishments special attention is generally devoted to this branch of vegetable culture. The culture of winter greens is not attended with any great difficulty, success depending chiefly on having rich soil well stirred, combined with strict attention to cleanliness, and copious waterings in hot weather.

Coleworts.—These are very acceptable in the winter on account of their tenderness and delicate flavour. In severe weather they need some slight protection; the best way of affording it being to lay them in closely in some sheltered place, covering with Bracken or litter of some kind. Sow the seeds the first week in July in drills which have been previously moistened, and cover up till germination takes place. Plant out in rows 18 in. apart, and fifteen in the rows; keep them well watered till fairly established, and dress several times with soot, using the hose freely amongst them. The brown grub is apt to be troublesome, and must be watched for and destroyed when seen. Early York and Early Imperial are good kinds. Rosette is a smaller well flavoured sort, that may be planted rather more closely.

Savoys.—Where a large supply of winter vegetables is required the Savoy will be found invaluable; it may either be used when fully grown or in the form of Coleworts, in which state it is more delicate, but, of course, not so economical as when fully developed. Plant out in rows 20 in. apart, and 18 in. from plant to plant; the smallest plants put in later and more closely will furnish Coleworts. Rich ground and plenty of manure water in hot weather are necessary to bring this vegetable to perfection.

Brussels Sprouts.—This vegetable is often considered somewhat of a luxury. Why this idea prevails it is hard to say, as its culture is as simple as that of ordinary Cabbage. It certainly requires high culture, under the influence of which it becomes quite as profitable a crop as any. Sprouts may be had the whole winter through. The seed should be sown in March and the young plants pricked out in a bed of free soil. From this they should be transplanted to deep and well-manured ground. The beds should be frequently hoed during the season, and an occasional dose of manure water will assist them to make vigorous growth. It is useless to attempt to grow them on poor, impoverished ground, and it is owing to this that many consider them an unprofitable crop.

Borecole or Kale.—This is the most popular of all winter Greens, and, on account of its coming to perfection in ordinary soil and without any special care, is largely grown by cottagers. The tops may be cut during the winter, and sprouts will be formed the ensuing spring. It is a hardy and profitable vegetable, and should be grown in every garden, as in severe winters, when the tender kinds of vegetables are checked, it will be a source of supply. Sow in March, and prick the young plants into an open bed. Transplant them into rows 2 ft. apart, and 16 in. between each plant. They should be grown in a breezy, sunny situation, as they then become stocky and hardy, and form good heads. J. C.

Byfleet.

PURPLE BROCCOLI.

Owing to the better appearance which the white and sulphur-coloured Broccoli present at table, the purple sorts have never been so popular as they deserve to be, for, as regards flavour, none of them are second to the white varieties, whilst the Early Purple Cape and the Late Dwarf Purple (of which the annexed is an illustration) are of the finest flavour and very hardy. The Early Purple Cape is one of the best of all the kinds of autumn Broccoli, as it never fails to become fit for use at the right time. A sowing made the first week in May ensures a supply of fine heads from the middle of September, and, if another sowing were made at the end of the month, the supply would be continued into November. The Mottled Purple Cape is another excellent variety, and a good mid-season kind; in colour it occasionally varies from greenish-purple to bright pink, and is, as its name implies, occasionally mottled. It should be sown about the last week in May, and will then be fit for use during the latter part of November and December. The Late Dwarf Purple is in every respect excellent. It grows from 12 in. to 15 in. high. Its leaves are dark green, short, deeply indented, and toothed. The heads, which are small and compact, are in colour the deepest purple, and they are fit for use in April if the seed be sown about the middle of May. The next variety—Purple Sprouting—is better known than any of the foregoing, being a general favourite for winter and early spring use, and certainly a more profitable winter green than it is has not yet been introduced to our gardens. In good soil it attains a height of 3 ft., and produces a profusion of



The Late Dwarf Purple Broccoli.

sprouts from within a few inches of the bottom, not the least of its merits being that the leaves and midribs of the same are as tender as the flowering sprouts. If a couple or three successional sowings be made from the beginning to the end of May, a succession of sprouts may be had from December to March. The above are the best, but other excellent coloured kinds are Dancer's Late Pink Cape, Purple Silesian, and Siberian.

W. W.

LAYERING BROCCOLI.

WITH the experience of the last severe winter still impressed upon us, I think it will be well to prepare as far as possible, lest a similar season is in store for us, and again damage our green crops. Owing to the wet sunless season, Broccoli especially is in a condition to suffer badly should severe weather suddenly come upon it. A succession of extremely mild winters had, previous to the last, brought the practice of layering Broccoli into disrepute, and doubtless if we could ensure their immunity from frost, it would be best to leave them undisturbed. Where for want of space it is absolutely necessary to plant Broccoli and Winter Greens between other crops they are much more liable to get drawn than if allowed ample space in open airy positions where the tissues become firm from their earliest growth. This is the reason why such crops so grown withstand frosts, whilst they destroy those in sheltered walled-in gardens. As a crop of only moderate sized heads is required in most private gardens, I advise any one having luxuriantly grown crops of Broccoli, of sorts that do not come fit for use until the spring, to layer them at once by taking out a little soil on the north side of the plant and laying them down, and then packing the soil well over the stems in order to protect them. They will at this season soon recover the partial check, and will safely withstand a degree of cold that would prove fatal to the majority of those left to take their chance; of course, sorts that are in ordinary years fit for cutting from November to January are best left standing erect, as laying would retard their earliness. We usually cut such sorts as Veitch's Autumn Giant Cauliflower, Veitch's Winter Broccoli, and Snow's Winter White as

they come fit for use, breaking the leaves down over the heart to still further protect from early frosts, and any not required for immediate use are lifted with good balls of earth and planted in pits. By this means it is quite possible to get a continuous supply of either Cauliflowers or Broccoli. Sorts for early winter use that are intermediate between the two will yield a long succession for cutting if sown and transplanted at different dates in quantities proportionate to the demand. Snow's Winter White, if true, is a first-rate sort, as is also Veitch's Winter Broccoli; they are both extremely self-protecting, the heart being enveloped in several layers of leaves, that curl over and answer the double purpose of blanching and protecting the heart. We plant these sorts largely for winter use, and the Early Penzance or Cornish Broccoli for an early spring supply, and a large quantity of the latest sorts, such as Model, Leamington, Cattell's Eclipse, and Carter's Champion. Of these we had good examples this year in June, and they are most acceptable in seasons that almost defy the production of very early crops out-of-doors; therefore, extra late productions are doubly valuable.

J. GROOM.

DISEASE-RESISTING POTATOES.

THE claim put forth for Magnum Bonum Potato, is not that it is disease "proof" but that it is disease "resisting"; a very different thing. During the past season it has had to undergo a severe test, and it has withstood it well. In my neighbourhood it has been grown in several localities by market growers, and the proportion of diseased tubers found is so small that it is barely worthy of mention. One grower states that he had but half-a-peck diseased in eighteen bushels, and others report of none at all diseased. This is a remarkable fact, to hear of any Potato this season, and contrasts strikingly with Regents and Victorias, which have diseased badly. The same grower said that "Regents and Victorias will cause me this year to lose £200; in fact, enough to break my back;" and but for the Magnum Bonums and Champions—which latter last year were fetching nothing in the market, and are now making from £8 to £9 per ton—he might have been ruined. I am confident that next year the market growers will grow six times more of Magnum Bonum than of any other kind.

"J. S. W." makes a reference to some correspondence which has appeared in the *Standard*, and quotes a remark that the system of "natural propagation by crossing the best and strongest growing varieties" has already brought us one disease-resisting Potato. There is not much novelty in that, observation, and it was probably only written by an amateur correspondent. We have been producing new sorts by means of crossing naturally and artificially for the past thirty years, but the results, so far as the production of disease-proof kinds are concerned, have not been encouraging. It is remarkable that the most successful example in this direction ever raised should have been not the result of artificially crossing with the intention of producing a disease-resisting kind, but simply the result of an accident; but how accomplished, the raiser still remains in ignorance. Mr. Clarke, of Christ Church, with whom it originated, says that he found, during the hot summer of 1870, three small seed-balls attached to a plant of the Early Rose (a Potato that was hardly likely to have been selected for this special purpose by a hybridist), and that the flowers from which these were produced had been naturally fertilised by some other kind is evident. From the fact that in this country American sorts never set their blooms, and are never fertilised except by the aid of foreign pollen, as they are devoid of it, I am inclined to believe that Paterson's Victoria was the pollen-parent, but it is nevertheless only conjecture. I cannot agree with "J. S. W." in his estimate of Magnum Bonum, that what disease-resisting properties it possesses are due to its lateness in ripening. Victoria, for instance, is as late, and yet it diseases badly; and the same may be said of many others. With me the foliage of the Magnum Bonum died long before the tubers were ripe, but I have not a diseased one. Some believe that it is to the hard woody nature of its stalk that Magnum Bonum owes its disease-resisting powers. This is no doubt the truth, and to that feature, and not to its lateness, does it owe the good qualities it now possesses.

A. D.

A Peril near Home.—Lately grave cases of poisoning by supposed Mushrooms gathered in Hyde Park and Regent's Park have fallen under treatment at Middlesex hospital. The symptoms were urgent and included violent delirium, though happily the patients recovered under treatment. This is a matter of general interest, because it is quite possible that some of the Mushrooms supplied by costermongers, and even family greengrocers, may be obtained from the same localities; and it is by no means so easy as is generally supposed to distinguish the genuine edible from the poisonous fungi. The public should be warned.—*Lancet*.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Ne Plus Ultra Pea.—Amongst late kinds I do not find any to equal this well known sort, either for colour, flavour, or productiveness. It has also a most continuous mode of bearing and continues growing and flowering until checked by the early frosts. When cooked it retains its deep green colour admirably, and, as regards flavour, it is simply as good as one can expect to ever get Peas. Every one is anxious to obtain the earliest Peas in cultivation, but probably the latest are equally useful to most cultivators, and if asked for the very best late kind, I should certainly still hold to *Ne Plus Ultra*. J. GROOM, *Linton*.

Potato Beauty of Hebron.—I have grown this Potato this season, and find that it has withstood the disease better than any other sort I have grown (except *Magnum Bonum*)—in all fourteen sorts. From 14 lb. of seed I dug about 6 pecks of fair-sized Potatoes and found only three diseased tubers. As regards quality when cooked they are first-rate. Although not so white as *Snowflake*, they are equal to it as regards mealiness. I intend to plant more of this sort next year.—J. T., *Awalton*.

Tender and True Cucumber.—We have grown this Cucumber for the first time this season, and find it to be one of the very best we ever grew. It is not only a handsome Cucumber both in length and shape, but it is also a very free bearer. Ours have been grown in ordinary manure pits with a flow and return pipe for top-heat when required. From under ten lights we have cut a great quantity of Cucumbers; I counted forty fit to cut to-day. Those who have not already tried this variety will, I feel sure, not regret doing so.—H. J. C.

Sutton's Magnum Bonum Potato.—In travelling through various parts of Wales and Ireland I heard an excellent account of this Potato. It was stated to be the only variety that resisted the disease with any success, and which, notwithstanding the peculiarly bad season, gave an excellent crop.—V.

Webb's Summerhill Cabbage Lettuce.—This is a large yet delicate Lettuce; its heart is close and white, crisp and sweet, being well protected by the outer leaves; altogether it is an excellent Cabbage Lettuce.—H.

THE FRUIT GARDEN.

CAUSES OF FAILURE IN STRAWBERRY FORCING.

A STRAWBERRY plant which, when placed in heat, starts feebly into growth, seldom realises in the succeeding phases of its growth the expectations of the cultivator. The vigour and freedom with which the first leaf is made fully indicates the future progress of the plant. This being the case, it is evident that every precaution ought to be taken to ensure an unchecked and healthy growth in the first stage of forcing, and many of the failures that occur may be attributed to the want of observance of this important matter. I am fully convinced that in many cases an insufficiency of nourishment and moisture in the autumn would account for lack of vigour in the spring. It is highly important that a sufficient number of old leaves should remain on the plant to ensure a free root action when placed in heat, and unless these are healthy and of good substance they cannot efficiently perform their functions. Healthy foliage can never be secured if the plants do not obtain a constant supply of nourishment. When the pots towards the summer become full of roots they should be either top-dressed or the plants kept growing by means of liberal supplies of manure water. Soot is a capital manure for the latter end of the season. It does not stimulate so much as other manurial agents, but it imparts a substance and colour to the plants which they never appear to lose. It is sometimes recommended that water should be sparingly administered during the last stage of growth. I never could understand the principle of such treatment, my own experience having always tended to prove that want of moisture at the root at the period when the crown is maturing is extremely injurious. A feeble growth, weakly trusses, and often blindness might be traced to neglected watering. Not only should the plants never remain dry, but they need frequent saturations. These remarks only apply to well-rooted plants; when the pot is not well filled with fibre there is but a slight chance of a good crop. The parts containing the germs of the flowers are formed in the autumn. The more healthy and free the plant the stronger will be the germ, and the vigour of the flower truss will thus be found to depend upon the state of the roots, and the robustness of the plant. If the necessary conditions in the autumn are not fulfilled the germs are not formed; if also the root action in the spring is sluggish and impaired the plants will prove sterile, and develop foliage instead of flowers.

Another source of mischief is the indiscriminate use of the syringe during the starting period, and many cases of unfruitfulness may be traced to the daily sprinklings which many consider indispensable. If the crown of a Strawberry plant is dissected the future flower truss will be found in the form of a minute speck not so large as a pin's head. If by any chance water finds its way amongst the leafy folds which envelop the germ and remains there, the germ will turn black, rot, and the fruit prospect destroyed. This injury is not perceived until considerable progress in growth is made, when the grower finds to his surprise that he has leaves instead of fruit. In fine bright weather a slight sprinkling is beneficial, but evaporation being very sluggish syringing should not be practised if not needful, for unless carefully applied it is liable to cause irreparable damage. The development of the flower truss is very interesting, and should be observed by all who are inexperienced in Strawberry forcing. When the plant is first started a small whitish point alone indicates fertility; as the leaves push up this little speck develops gradually, expanding and dividing itself into other minute points, which represent the individual flowers. By the time the third leaf appears the flower truss is ready to issue from the crown. By this is seen how important it is to guard against a hurrying forcing temperature during this period of growth. The first month is undoubtedly the most critical time, and too much heat then will have the effect of starting the plants rapidly into growth, but the flower truss will be left undeveloped. The best and strongest plants obtainable may be rendered sterile by the injudicious application of heat and moisture at the time of starting. Dryness at the root during the winter is also an often unsuspected cause of unfruitfulness. Plants may get dry, but they should never remain so long at a time. If the foliage once shows signs of shrivelling the vigour of the plant is impaired, and a weakly flower truss or perhaps none will often be the result. These are some of the causes of failure, all of which may be easily avoided. Sterile plants are a source of vexation to the grower, and the uninitiated are often at a loss to account for the absence of the flower truss when the plants are to all appearance in good health. A well grown and properly nourished Strawberry plant will seldom prove unfruitful if fairly and gently treated in the earlier stages of forcing.

Byfleet.

JOHN CORNHILL.

THE CURL IN PEACH TREES.

At p. 278 it is asserted that the "curl" in Peach tree leaves "is caused by an internal fungus," &c. So far as any practical suggestions for curing the evil is concerned, gardeners are correct in attributing the disease to cold or unfavourable conditions of weather, and whether it be fungi or not they will undertake to cure it by protection. Fungi may be the immediate cause, or just as likely curl may be the cause of the fungi, but at least it is certain that the former appears under adverse conditions of climate and weather only, and never in glass houses that are managed with ordinary care. Why do not fungologists suggest a cure? Gardeners say it is cold or bad weather that produces curl and they can cure it by protecting the trees from the supposed cause. Let fungologists practise their theory and arrest the fungus outdoors when it once begins, or even prevent its appearing. That the cause which can be dealt with most readily and successfully is the true one will, I think, be generally admitted, and the only one worth caring about from a practical point of view. I have as much respect for scientific teaching as any one, but to be told every now and then, as we have been in the case of Peach blight, that we are ignorant of the cause and slow to apprehend, while as yet gardeners only have been able to suggest a cause which by prevention they can cure it is, to say the least, amusing. I have seen curl disappear completely in a single season from trees after they had been covered with a glass roof, and continue to be as bad as ever on the trees that were not covered up to the door of the house. What gardener would take the trouble to look for the cause of the curl through a powerful magnifying glass when he can observe its progress without it on a larger scale, and study it with greater prospects of success? What happens in a case of curl is this, as most gardeners will testify: under the influence of a spell of genial weather the trees start into growth, and do well enough till a change comes, with probably a cold or east wind, which lasts for two or three weeks as it often does. The growth of the trees is at once arrested, and soon after the curl appears, and it continues to extend and keep pace with the slow growth till more favourable and genial growing weather returns, when the points of the affected shoots push out rapidly into new growth and leave the curl behind them and quite escape from it, the worst results being that the growth is thrown back and the later growth is imperfectly matured. Fungologists attributed the Potato curl to a fungus as well, and those who did not know what it really was, and had never seen, or, at least, noticed it before, actually described it from a laboratory investigation as a new disease at the

time; but who ever saw it occur except under the influence of ungenial weather? I do not deny that other causes than cold may accelerate the disease in the case of the Peach, such as cold or undrained borders, or anything that hinders healthy development, but when it becomes general, as it has been during the past exceptionally cold summer, only one cause can be assigned for it, that is, the weather. C.

PEACH CULTURE AT FLOORS CASTLE.

MR. KNIGHT, the able superintendent of the gardens at Floors, has stepped out of the beaten path in the management of Peach trees under glass, and the result is so satisfactory that a few lines may not be uninteresting, particularly to those who have limited space for making borders. In days gone by it was thought necessary to have outside borders equivalent in width to the breadth of trellis to be covered, but at Floors the roots are confined to narrow raised pits, 2 ft. 6 in. in width, and about the same height above the ground line—in reality an extension of the pot system. Nine years ago a span-roofed house, 90 ft. in length and 12 ft. in width, was in use as a plant stove. A glass partition divides it across the centre; the narrow pit runs along the south side, and rises to within 12 in. of the bottom of the trellis. In the centre of the first compartment, 45 ft. in length, a mound of compost was placed and a dwarf maiden Hunt's Tawney Nectarine—an early variety, worthy of general cultivation—was planted. In the second compartment an Early Grosse Mignonne Peach received similar treatment, the compost used being pure loam and lime rubble.

The trees, trained upon the extension principle, seem to have made equal progress, which must have been as rapid as it is satisfactory, the vigorous short stems presenting the appearance of twenty years' growth, and the trellis in each house, 45 ft. by 12 ft., being evenly and entirely filled with bright short-jointed shoots bristling with blossom-buds of the most promising character. I did not ascertain from Mr. Knight the number of fruit he took from each of these young giants; but judging from the way in which he taxes the trees in his late houses, I conclude that he takes at least one fruit from every square foot of trellis. Advocates of the extension principle of training know that roots increase as rapidly as leaves and wood, particularly when they are placed in comfortable internal beds, in which, as in this case, thousands of healthy feeders rise to the surface ready to devour the good things provided for them through the growing season. Clean healthy trees must be formed before they require feeding, and here Mr. Knight has displayed his skill by selecting maiden trees that have never been shortened back, by keeping his knife in the sheath and by the timely removal of all surplus shoots with the finger and thumb.

In many gardens, particularly in low cold situations, we make our Peach borders wider and deeper than is necessary for the training space allotted to the branches; young trees grow vigorously and soon require more space, but anxious to retain a certain number we resort to shortening back, thinning and root-pruning, the only effectual remedy. Mr. Knight has avoided these necessary evils by giving his branches full play, and by making his narrow internal borders piecemeal, and as often as the numerous fibres require fresh supplies of the firm resisting calcareous food in which all stone fruits revel without becoming gross.—W. COLEMAN, in *Gardeners' Chronicle*.

ROOT PRUNING.

I THINK Mr. Groom (p. 316) rather exaggerates the difficulties and disadvantages of root pruning. Perhaps his experience in this matter is confined to the favoured climate of the south of Kent, where it is well known that Apples and Pears, &c., are grown successfully with as little skill and attention as anywhere in the kingdom. I have not so much knowledge of Kent as Mr. Groom has, but from what I have seen of the orchards there it appeared to me that the system of pruning and training adopted generally was of rather a loose description. To write from Kent on the subject of root pruning and say that it is not only useless, but injurious in the majority of cases, may hold good, but in late and wet districts in the north of England and other cold localities the theory would be found impracticable. I have been one of the first and the last to advocate the extension system of training fruit trees, that is, of planting and leaving them undisturbed, except thinning the branches when needful. I know that there are conditions which can only be dealt with by root pruning, and Mr. Groom will not readily convince gardeners to the contrary. He states that in his neighbourhood "root pruning is unknown; that worthless or worn-out trees that are not vigorous enough to graft being grubbed up and burned." Could there be any alternative in such a case? To think of restoring lost vigour in old trees by root pruning is altogether a fallacy. Another "impression"

of Mr. Groom's is that "fruit trees of all kinds" are induced to make gross wood by being starved, and he suggests that the roots should be prevented from going down into an ungenial subsoil by applying rich dressings to the surface of the border. There are Pear trees against a wall here which have been partially lifted twice in fifteen years, and encouraged to stay near the surface by annual rich dressings, but it does not prevent them penetrating deeply. There are many feet of strong clayey loam underneath, and thus the roots will penetrate as soon as they are let alone, and the result being an annual growth of great length, and vigour, and barrenness, except perhaps at the very extremity of the branches. We cannot root prune as often as we would like. In another part of the garden here we have a great number of finely grown pyramidal Pears and Apples, and the crops they bear in this climate are in exact proportion to the amount of root pruning we can do periodically. Though lifted quite out of the ground a few years ago, many of them would now make shoots 5 ft. long if allowed. Another remarkable fact about many of these trees is that they are not growing in a deep soil, though a tolerably rich one; nor is their over-luxuriance due in any case to the roots getting down into the subsoil, but simply to a cool soil and climate, which we cannot counteract except by root pruning, and thereby checking the root supplies. I quite agree with Mr. Groom that it is needless "taking up any kind of tree to examine its roots." No one would do so where the necessity of root pruning was so plainly indicated by the gross habit and barren branches. Where these are found, particularly in the case of wall and trained trees generally, there is only one cure, and that is "root pruning."

J. S. W.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Dell's Hybrid Melon.—Except for trial I have grown nothing else but Colston Basset Melon ever since it made its appearance, having found it a good constitutional variety, a free bearer, and the fruit excellent in flavour in good and bad seasons. In future, however, I intend making an exception in favour of Dell's Hybrid, which promises to have all the good qualities of the Colston Basset, while it is considerably larger, more juicy, and of better flavour; which is saying a deal in its favour, as there are few Melons so sweet and good as the Colston Basset variety. There is, or was lately, to be seen a house about 100 ft. long at Drumlanrig Castle Gardens devoted entirely to this Melon, all the plants carrying fine fruit—some single fruits weighing 5 lb., and the flavour excellent, and though the season has been dull and wet, and the house in question glazed with obscure glass, Mr. Thompson speaks very highly of it indeed. By the way, how is it that Melons thrive so well in dull seasons like the present, and so often grow badly in fine seasons? In 1868, which, as will be remembered, was unusually hot and dry from May till October, we had much difficulty with our Melons, and the inferiority of the crops was noticed by others at the time; while in 1872, which was a wet season—when we registered about 70 in. of rain here—our crop was an exceptionally fine one. This season it has been the same. We have had more fruit than we could use from the beginning of the season until now, and, moreover, never were better as regards flavour and sweetness. I only state the fact, but I attribute such results to the better preservation of the foliage. In hot dry seasons the leaves are apt to be attacked by insects, and otherwise suffer from the continued sunshine when transmitted through 21-oz. glass, and are unable to perform their functions properly till the end. It may be different in the open air, but I have often thought that plants are less able to stand a high sunheat under glass than when quite fully exposed—the temperature being equal in both cases.—J. S. W.

Apples for Market.—The present season has been remarkable as regards the fluctuations in the market prices of fruits, and more especially the common orchard kinds, for although a light crop generally, some kinds are much below the average, while others have produced a crop double that of ordinary years. The most notable being Apples, that are at the present time selling wholesale at from 8s. to 10s. a sieve; this is an extraordinary price, for if large kitchen Apples are worth 1d. each in the market, they cannot be retailed at anything like a reasonable price; about here moderate sized trees of Stone's Apple have realised £2 or £3 per tree. On the other hand Pears and Plums are below the price of some seasons when fruit is much more abundant, and decidedly below the average as regards quality, still it seems singular that Pears and Plums are only worth about half the price of Apples that are equally below the average in point of quality. I have no doubt that this will give an impetus to Apple planters to depend even more largely than ever on the king of hardy fruits, and that Apples will to a great extent supplant Pears as standard trees. I find here that even the largest growers are gradually reducing the number of sorts, and making a selection rather than a collection of varieties is the plan now adopted.

The very early or very late sorts are those most sought after, as they always sell well, while the mid-season kinds are those that glut the market, and bring prices down below a remunerative point. At present fruit culture for market is only in its infancy, but promises to assume larger proportions.—J. GROOM.

A New Raspberry.—A Raspberry that we have before noticed in *THE GARDEN* is thus alluded to by Professor Sargent in the *American Agriculturist*: "We have cultivated for the last two or three years a *Rubus*, a native of Manchuria, Northern China and Japan (*Rubus crataegifolius*, Bunge), with the supposition that it was a Blackberry, and of little horticultural importance or value, except as an ornamental plant of neat habit, remarkable for its rich autumnal colouring. This year the plants have fruited, and it proves to be a true Raspberry. The fruit is large, firm, clustered, nearly semi-spherical, of a brilliant orange-scarlet colour and with a flavour which suggests the common Black Raspberry or Thimbleberry. The largest fruit I have noticed is $\frac{3}{4}$ in. in diameter, and rather more in length. Probably as a table fruit the Chinese Raspberry is hardly worth cultivating, but it is suggested that by using it to cross with some of the delicate garden varieties, a hybrid might be obtained hardier than anything now in cultivation. Such a hybrid might be expected to produce large, high-coloured, and handsome fruit of great substance, and therefore valuable for market purposes. The neat habit, great hardiness, large brilliant fruit, and especially the rich claret colour which its foliage assumes in autumn, render the Chinese Raspberry one of the most desirable of the many shrubs recently introduced from its native countries."

Cleaning and Painting Vines and Peach Trees.—As the time is now coming on when gardeners will be cleaning and painting their Vines, may I ask some of those who have been in the constant habit of going over all their Vines and Peaches with the brush and the scraper, with the object of checking red spider and thrips, &c., to try the experiment of leaving some of their trees undressed? For my own part, I do not believe that scraping all the loose bark off Vines and painting them afterwards does the least good, but is the cause of much useless labour. I make an exception in the case of mealy bug on Vines, but I apprehend gardeners are, as a rule, too careful to let that pest ever get upon them. I have never either cleaned or painted a Vine here, and I will undertake to say that our houses are as free from insects as those of any of our neighbours, and may be cleaner than a good many; at least, I could show Vines at the present time with leaves green and healthy though the crop was cut a good while since, and the wood quite hard and ripe, and early Vines carrying their foliage healthy till it fades in the natural way are the best test. In passing through these Vineries the other day a gardener from the south said the Vines reminded him of the famous Vines at Berkhamsted, which he said were never either peeled or painted. I make these remarks under the conviction that many gardeners would be glad to dispense with the labour of cleaning their Vines if they thought they could do so with safety.—J. S. W.

Transplanting Large Peach Trees.—Scarcely any fruit trees move with so little check as the Peach. It is no uncommon occurrence to build a Peach-house in autumn, stock it with full-sized trees immediately, and take a good crop of fruit the next year. What a great saving of time is thus effected! If young trees are planted it is three or four years before such results can be obtained, if they thrive ever so well. Trees from six to ten years old move the best; in fact, if such trees are moved carefully from one part of the garden to another, they suffer no check at all if the operation be carried out in the autumn. I have moved trees in February and took a crop in a cold house the same year, but it is best to transplant them in autumn, even where no forcing is done. One of the advantages of moving trees of from six to eight years old is that their branches are then more flexible, and will yield to the trellis more easily; and this is a consideration, as very few wall trees can be made to fit exactly to a trellis in a house, if they have more than eight or ten years' growth.—E. H.

Utilising Unripe Grapes.—This unkindly year many Grapes in cold houses will not ripen; a good use for them will be found in the following receipt, which we learnt from a cook who had been stationed at Malta, where Grapes are plentiful:—To stew Grapes, pick them off the stalks, put in a jar with a little water and some white sugar, put in the oven for about half-an-hour, serve in a glass dish. This makes a pretty dish, and even with red Grapes is not at all bad.—GEORGE F. WILSON, *Heatherbank, Weybridge*.

Gridiron Pear Trees.—We noticed a wall beautifully covered from top to bottom with these at Bodorgan. They were only planted in the spring of 1872. "Gridiron" is Mr. Ellam's name for them, and a very good one it is. Walls can easily be covered in this way in three or four years, whereas, by the old horizontal plan, a very long time was frequently wasted in covering them.

PLATE CCI.

TEA ROSES.

Drawn by ALFRED PARSONS.

CHARMING as all Roses are, there are none more beautiful than the Teas, and of these two of the most charming are represented in our plate this week. *Souvenir d'Elise Varden*, the elder of the two lovely sisters, is indeed, when well grown, a perfect Rose. Unfortunately, its habit is not very vigorous, as, in my experience, it does not ripen its wood well, and is consequently very liable to injury from the winter frosts. It grows best on dwarf standards, and should be planted in a sheltered situation. I have never seen this Rose better grown than by an amateur whose plants were under the protection of a dwarf wall built expressly for them; they were half standards, not trained against the wall, but planted some 2 ft. from it, and the blooms they produced certainly well repaid him for the trouble he took in their culture. Of *Marie Van Houtte* how can any one adequately describe the beauty? If only allowed to grow one Tea Rose I should unhesitatingly choose this one, perhaps because of all Teas it is to me the most kind, seeming to find in my garden a soil that suits it well. Anything more lovely than the delicate rose tinting of the outer edge of the petals I cannot conceive; it seems as if it were blushing at the perfection of its own loveliness. This Rose was sent out by Ducher in 1871. Its habit is very good. I have several plants of it on the seedling Brier, which have grown to the top of a wall 10 ft. high, and on them may frequently be seen forty or fifty good blooms open at the same time. It is one of the earliest spring Roses, as well as one of the latest autumnal bloomers, and I have on more than one occasion cut a bloom of it from a south wall on Christmas Day. The seedling Brier seems to be the most suitable stock for this Rose, and if the plants are frequently syringed, and the roots well supplied with liquid manure, the growth it makes is very vigorous. I am inclined to think that the generally accepted theory about not pruning Tea Roses much is wrong, and that they do better when cut moderately hard in the spring. They should be protected during winter by Bracken placed amongst their shoots, and their roots should be well covered with litter.

Heavtree.

R. N. G. BAKER.

Dwarf Silvery Grass.—The remarks of Mr. T. Williams (p. 303) respecting *Aira caryophylla* are evidently wrong. I infer from the description he gives that he means one of the glaucous varieties of Fescue Grass, either *Festuca glauca* or *F. punctata*, which answer well for the purpose he speaks of. *A. caryophylla* is one of our diminutive annual native Grasses, which grow in sandy soils. It makes its appearance in March or April and flowers in June, and soon after disappears. Its foliage is at all times scanty, and in bloom it is scarcely distinguishable from *Agrostis nebulosa*, which is so much used in bouquet making.—C. M.

—Mr. Thomas Williams, Ormskirk, the writer of the note on the dwarf silvery Grass for the flower garden (p. 303), intimates to us that he inadvertently called it *Aira caryophylla*, whereas it should have been named *Festuca glauca*.

An Ancient Seed Shop.—The *Standard* of Sept. 27, in its report of the recent excavations at Pompeii thus speaks of the discoveries that were made: "As it was impossible to be at all the points of interest, ten new excavations being carried on simultaneously, I went, being advised by those most competent to judge, to section No. 9, and there, in a small division parallel to that already numbered five, the curiosity of the spectators was soon richly rewarded. Almost with the first strokes of pick and spade, used, by the way, as only Pompeian diggers know how, there came to light a quantity of household objects, chiefly of those light and beautiful forms and delicate workmanship to be found in even the humble Pompeian dwellings. A detailed list of the various articles in the order in which they were found fills six closely-written pages in my notebook. There were bronze amphora lamps, brooches, bracelets, delicate vases, and one very large and elegant bronze candlestick, earthen vessels of various forms, fragments of glass, amongst which were the pieces of a lovely little glass vase of the most brilliant blue colour. The belongings of the upper and under stories of this little house were curiously mingled together, objects of mere ornament being mixed up with kitchen utensils. Then came some large tiles and fragments of a large beam of wood, showing that the roof had been crushed in on the lower stories. It is judged to have been the shop of a seedsman, for besides some bronze scales and weights, several large heaps of small Beans, grain, and Hemp seed came to light, with portions of wooden casks, and canvas sacks in which they had been kept. One piece of sacking which I had in my hand still tied with a bit of string was wonderfully perfect although quite black."



THE LILY
GARDEN, MAR. VAN HOUTE

GARDENING FOR THE WEEK.

Greenhouse.

Clianthus Dampieri.—Where this gorgeous greenhouse plant is grown it is best when raised from seed, and, managed as a biennial, the only difficulty with it and that which has caused many to cease growing it, is that its roots cannot withstand being disturbed by frequent potting in the way that most plants can. It should be treated on the "one-shift" system, with not the slightest disturbance of its tender rootlets, even so far as moving the drainage material in potting. Plants that were sown in the spring and are now in small pots, even if suffering for want of root-space, will, in most cases, be better if allowed to remain as they are until after the turn of the days. To grow this *Clianthus* strong and well requires a good deal of root-room, and to place the plants now in pots large enough to admit of their attaining the desired size would necessitate the use of a larger quantity of soil than the roots would take possession of so soon as desirable during the comparatively dormant winter season. With young plants in such a condition as those above mentioned, it is advisable to use a little weak stimulant in a liquid state from time to time.

Mignonette for Winter and Spring Flowering.—Where the cultivation of *Mignonette* is made an especial feature, the plants raised from seed early enough to give time for their attaining a good size should now be accommodated with a good position in a light pit or house and placed close to the glass, so that they can receive plenty of air, for on this, in a great measure, depends their leaves having sufficient strength and substance to keep green and healthy during the winter, a character which adds so much not only to their appearance, but to the quantity of good flowers the plants are able to produce. Where this favourite sweet-scented plant is required almost throughout all the year, it is necessary to keep up a succession of sowings; the plants sown later in the summer, and again about the beginning of September, will need to be kept quite cool. A light, airy pit or cold frame with the lights drawn completely off on fine days is the best position for this late stock, as the object is not to bring them on quickly, but rather to keep them short and sturdy until the winter is far advanced, when, through the increased light they will naturally make more growth, and come into flower and last until the spring-sown plants are ready to succeed them. One essential in the pot culture of *Mignonette* is to keep the plants scrupulously clean from aphides that establish themselves on the undersides of the leaves, and if not sought for, they frequently, before being noticed, weaken the foliage so as to cause its premature decay. Diluted manure water should be given every week to the most advanced plants.

Schizanthus.—Though somewhat common plants, there are few amongst the many more pretentious subjects that can be made to produce a better display in the conservatory or greenhouse during the spring when well managed. If liberally treated they will attain a size seldom seen amongst the generally crowded examples grown out-of-doors. The quantity of flowers they will produce will of course be proportionate to the size of the plants, which will be best regulated by the size of the structures they are required to embellish. To grow them to a large size, the pots will need to be 12 in. or 13 in. in diameter, and any plants that are suffering for want of room may be at once transferred to pots this size; for if allowed to remain long in the small-sized pots after the roots get crowded, the repotting later on will have little effect in benefiting the plants. The soil should be such as is calculated to grow *Pelargoniums* well—containing a good quantity of manure. Similar treatment in other respects to that advised for *Mignonette* will answer for these also.

Pelargoniums.—Plants of the large-flowered kinds that were kept on blooming beyond their usual time, and were cut down late, will have broken sufficiently to admit of the old soil being removed and the plants repotted, potting them, as in the case of those previously cut down, in smaller pots, in which they can remain until after Christmas. These plants will last for a number of years, and by treating them in the manner advised the earliest portion will come into flower sooner in the spring, and the latest will acquire the habit of regularly flowering late, by which they meet the requirements of those who grow them for general decorative purposes, and whose object is to keep up a display over as long a period as possible. The first and second potted plants will now have begun to root freely, and may receive a little more water, but care must be taken from now and throughout the winter months that the soil is only kept in a sort of half-moistened condition, that is, much drier than the majority of other plants would be kept. It is necessary to impress this upon those who have not had much experience with this section of *Pelargoniums*; for if the soil be kept as moist during the winter as most other plants in a growing state would need, the result is, that the

roots make little or no progress whatever, and the shoots that are made would be long-jointed and weak, which would produce leaves so deficient in substance that they would turn yellow and prematurely die away, leaving the plants when the flowering season arrives thin and naked at the bottom. Those first potted should, as soon as they require it, have a few sticks put to them, so as to admit of the shoots being tied out in a way that will keep the centres of the plants open; for, though it would be a mistake to train plants required only for ordinary decorative purposes to the extent necessary for those that have to be moved about for exhibition, still to grow *Pelargoniums* in a way that will preserve their natural habit, the plants must be kept sufficiently open to preserve a sturdy habit.

Fuchsias.—Plants that were struck at the end of July and afterwards placed in small pots should not be allowed to remain in these too long, for if once they get into a stunted condition they will never grow freely afterwards. They should now be placed in 5-in. or 6-in. pots, which will be large enough for the winter, potting them in good loam, well enriched with rotten manure, with the addition of enough sand to make the whole sufficiently porous, but not too light. They should, if possible, be kept on a shelf close to the roof in an intermediate temperature. Tobacco smoke is injurious to the leaves of young *Fuchsias* such as these, especially during autumn and winter; but if aphides make their appearance, the plants should be dipped in Tobacco water. These young plants will make much better specimens than old plants; but where provision has not been made by striking them at the time these were put in there is no alternative but to use the old plants again next year, for which purpose those that flowered first during the past spring should now be put to rest. *Fuchsias* will bear a great deal of hard usage, and they are too often subjected to such indifferent treatment as to deprive them of the possibility of attaining the well-furnished and vigorous condition they are capable of. A very frequent course is to keep on with the same old stools year after year, and in the autumn, when they have become shabby by losing their leaves, they are at once thrust under plant stages, into sheds, or any dark out-of-the-way corner, and there allowed to remain with the soil surrounding their roots as dry as tinder, which destroys the greater portion of the fibres, thus preventing them from breaking in spring in a manner that will ensure healthy growth. I have found it much better to take those that flowered earliest in the spring and from the present time to gradually reduce the quantity of water applied to them until there is but little further disposition to grow, and then to cut the side branches close in, and reduce their height so far as is considered necessary. The plants should be placed as closely as possible in any house or pit where they will be secure from frost, and merely giving them water enough to cause the buds to break, but not more than will maintain them in a half dormant condition until after the turn of the days. Plants that were treated so as to bloom late throughout the autumn, if well furnished with advancing buds, as they should be, will keep on flowering for some weeks, and though the display they make is not equal to that produced earlier, yet when flowers are scarce they will be found useful.

Bulbs.—It is now quite time to see about potting the general collection of such bulbs as are required for winter and spring flowering, especially *Hyacinths*, which, in common with all other plants of a similar nature, evince by their roots beginning to develop that they want to be placed in soil. It frequently happens that the indifferent way in which *Hyacinths* and other bulbs flower is attributed to some deficiency in the strength or maturity of the bulbs, when in reality their unsatisfactory blooming is caused by the first efforts of the bulbs to develop roots taking place before they are put into soil, by which neglect the tender fibres are injured. In the growth of these plants, and particularly *Hyacinths*, there is no necessity for using pots so large as are often employed. I have frequently tried the deep unsightly pots that are made purposely for the cultivation of *Hyacinths*, but I never found the flowers improved in the least thereby. The splendid spikes which the London market growers produce with two or three bulbs put in a small pot only just sufficient to admit them, is sufficient evidence that a great deal more depends upon the condition and strength the roots have acquired previous to the time of their being forced, than on any assistance that can be derived from a large amount of root space. In selecting *Hyacinths* I should advise amateurs to rely upon the good and well proved older varieties, for, although they are offered at prices very much below that of the comparatively new and scarce kinds, the difference in price is far from an indication of a proportionate, or often any, superiority in the flower. Though *Hyacinths* are such general favourites, their comparative uselessness after the first season's blooming makes them much dearer than most other bulbs. The *Polyanthus Narcissi* have not this objection, for after being flowered in pots they can be planted out in the open borders where they will make a fine display in succeeding years; the agreeable perfume and form

of their flowers especially adapts them for cut purposes. Similarly in subsequent seasons Tulips flower well, and many of the fine single-flowered varieties deserve to be much more largely grown in pots than they are. Crocuses, especially such kinds as Queen Victoria (white), Sir Walter Scott (pencilled lilac), Pride of Albion (white, striped violet), Mont Blanc (white), and New Golden Yellow, are very beautiful, and most useful where grown in sufficient quantities so as to keep up a succession. If their wants are attended to after blooming they will, in future years, be equally as effective out-of-doors, and much superior to the commoner kinds more generally used for planting in borders. Scillas, particularly *S. sibirica*, can hardly be too largely grown in pots, in which there is no difficulty in getting them to bloom freely. The charming shade of blue and elegant manner in which the flowers are produced especially adapts them for bouquets. When grown in sufficient quantities they will be found most serviceable, particularly in severe winters, for a continuous supply until those in the open borders flower; ordinary sandy loam suits all the above kinds of bulbs admirably, and the pots should be well drained. As to treatment after potting I have found nothing that answers the essential object of getting a plentiful supply of roots before much top-growth is made, better than the old-fashioned method of plunging them in a bed of coal ashes out-of-doors with 4 in. or 5 in. of the same material underneath the pots in order to keep out worms, and 6 in. above. In five or six weeks they will generally have made plenty of roots.

Ixias and Sparaxis.—These beautiful plants are fine objects in pots, their rich and varied colours, together with the graceful habit of their flower-spikes, are such that no doubt they would be much more cultivated in this way if they were better known, though most of them are old introductions. Six-inch pots are large enough for half-a-dozen bulbs of these; but after potting they should be placed in a cold frame, so as not to be so much exposed to the wet in the way that Hyacinths and other similar bulbs would be, as they do not like as much moisture until they have got plenty of roots.

Tritonias.—These are amongst the most useful greenhouse decorative subjects we have, as they may be had in bloom from early in the season until the summer is far advanced, when greenhouse flowering plants are comparatively scarce; but though thus not coming under the head of forced flowers, it is well for those who think of growing them to obtain them at once and pot them. Those who are acquainted with the old well-known orange kind (*T. crocata*) may form some idea of the effect that may be produced by growing an assortment of the blush, scarlet, white, and shaded varieties. A dozen bulbs grown together in 7-in. or 8-in. pots will be found a very useful size; where larger specimens are needed, all that is requisite is to have larger pots containing a proportionately larger number of bulbs.

Potting Soils.—The continued wet throughout the late summer has not permitted either turfy loam or peat getting so dry as desirable before it has been stacked. At one time it was the practice with plant growers to keep potting soils much longer before being used than has since been found advisable. As it has been proved that the retention of the fibrous matter which the soil contains is a matter of the first importance to the healthy development of the roots of the plants to be grown in it, it is evidently a mistake to keep potting soil so long before it is used, as it causes the fibrous vegetable matter to become more decomposed than necessary. If sufficient time has elapsed for the roots of the Grasses, Ferns, &c., which the loam and peat contain to die and part with their moisture, they are in the best condition for use. With this view a supply that will last for one year is enough to lay in at a time. In stacking loam for potting it is the custom with some to mix as much manure—usually stable manure—as will be needed, but where this is mixed with the soil at this time it should be quite fresh, as, if rotten material be added it is sure to contain quantities of worms, which do much mischief to the soil, and whatever proportion of manure is required for the plants ultimately to be potted can be added at the time of potting, using it in a dry state so as not to admit of there being worms in it. Leaf-mould prepared for use next spring should be such as afforded by the leaves that fell last autumn, as this also if too old gets into a close adhesive state and loses the fibre, the presence of which is quite as much benefit to the plants as are the food elements which the material contains. Enough Sphagnum Moss for the year should now be got, as like other vegetable matter it is at this time in its best matured condition, a state that enables it to resist decomposition longer. It is also better to secure it before winter, as with severe frost it sometimes gets so far injured as to be reduced to a slimy condition and not fit for use.—T. BAINES.

Flower Garden.

Auriculas.—"Delta" does not seem satisfied with what I stated about the woolly aphid, but I decline to discuss it further.

He first took exception to what I stated on the treatment of infested plants, and brings forward a remedy which he says he has tried and has not been successful. But I am prepared to say that my remedy, if properly applied, will be effectual. On the authority "of one of our most distinguished vegetable physiologists," "Delta" further states (p. 308) that watering the plants with paraffin, as he recommends, is beneficial. At the time I gave a word of warning against this practice. If it is preferred rather to follow "Delta's" advice who, according to his own showing, has lost the largest private collection in the south by one disaster, then it is no fault of mine. I never use manure water for Auriculas, but those who do will no doubt try the paraffin, and duly report thereon in these columns. Since writing last week the weather has changed to fine and warm, causing a large increase in the autumn bloom. A letter just to hand from Mr. Simonite, of Sheffield, states that in his collection the autumn bloom is unusually plentiful. At least 25 per cent. of the large plants in our collection are showing flower trusses. Still water carefully, ventilate freely, and keep the plants quite free from insect pests.

Carnations and Picotees.—All who are growing collections of these will now be busy amongst them, removing and potting the layers, or planting them out in beds of fine soil to be afterwards transplanted. Each layer must be carefully raised out of the ground. If roots have been formed the plant may be cut off, if not, press it into the ground again, to remain until roots appear. If it be intended to plant out into the open ground, the beds should be prepared for them by being deeply trenched, and, if necessary, some rotten stable manure should also be worked into the ground, but it ought not to be nearer the surface than 6 in. Clumps of the commoner border varieties are much appreciated when placed near the front of herbaceous borders. The best way to manage them is to layer the shoots in the manner as recommended for the choicer varieties, and allow the plants to remain where they are layered. Good rich sandy loam and manure should be placed round the roots. Such clumps as these produce scores of blooms during the season.

Dahlias.—The fine weather suits these, and we are still getting masses of very fine blooms. There is no further attention required than to tie the stems to the sticks, and allow the plants to produce as many flowers as they will. Such flowers are very useful for cutting, and if they do not attain the size of exhibition blooms they are none the less useful for room decoration. The single-flowered kinds, such as *D. coccinea*, *lutea*, and *Paragon* ought to be grown in every garden. The plants may be carefully lifted at the first signs of frost, and taken into a Vinery from which the Grapes have been cut, or a similar place, where they will continue to produce flowers for several weeks.

Gladioli.—Though late, the season for these has now come. The few fine days and warm nights we have had has caused the flowers to open finely. If the spikes are cut just as the first two or three blooms expand the others will open indoors if placed in water to the top of the stem. If there are any seed pods ripening they should be gathered just as they begin to burst. Lay them on paper in a dry airy place, where they will open in a few days and the seeds fall out. A green caterpillar is at present busy in eating the flower buds before they appear out of the sheath, these should be at once sought for and destroyed.

Pinks.—No time should now be lost in planting these in the flowering beds. Instructions have already been given as to the preparation of the ground. The plants should be carefully lifted and a hole dug out for their reception large enough to contain half a spadeful of good loam and manure; place this compost carefully round the roots. The plants should be 9 in. apart each way. A few of the best named Pinks are Blondin, Bertram, Boiard, Cristabel, Devise, Dr. McLean, Dr. Masters, Emerald, Emily, Excelsior, Freedom, Godfrey, Harry Hooper, John Ball, Lady Craven, Mildred, Mrs. Mitchell, President, Reliance, Shirley Hibberd, and Victory. In making up a collection such sorts also as the following should not be omitted: Lord Lyons, rosy purple; Lady Blanche, pure white; Anne Boleyn, Derby Day, and Mrs. Pettifer. These are quite distinct in type from the florists' section, and are much valued as cut flowers.

Pentstemons.—These are still flowering most freely; the stems from each plant are numerous and quite loaded with flowers. All the attention they require is to see that the stems are supported with sticks; but where they are planted in beds the stems support each other. The seed-pods must be removed, as they tend to check the production of flowers. Cuttings must now be put in. There are always plenty to be obtained at this season; the small side shoots at the base of the stems are the best. Insert the cuttings in pots or boxes of fine sandy soil, and place in cold frames or hand-lights, as may be most convenient. Shade them from the sun and water them moderately. —J. DOUGLAS.

Indoor Fruit.

Pines.—The growth of these, on account of the ungenial season, is necessarily immature, so now that the days are shortening and daylight moreover obscured by autumnal fogs, all available light must be taken advantage of, therefore all the glass of the pit or house should be thoroughly cleansed. Discontinue syringing overhead, and water but sparingly. It is very probable that many plants may this season fail to show fruit at the proper period, for, notwithstanding that the appearance of the growth is all that could be desired, there has been no sun to consolidate the tissues. It will therefore be wise to apply additional artificial heat, with free ventilation, and but little moisture in the atmosphere or at the roots. Suckers that were planted as early as January and February ought most certainly to show fruit without this exceptional treatment, and should now be kept rather cool—say about 65°—and dry both at root and top; at the same time guard against the too general practice of withholding water till the foliage is half parched; such treatment is neither good culture, nor in accordance with physiological principles. All the young stock should be finally overlooked preparatory to wintering, and any that are likely to become pot-bound should have a shift at once; give them plenty of room, and keep them in gentle growth for another month or so. The smooth Cayenne and Charlotte Rothschild varieties—the best winter Pines—that are now swelling fruit, should have weak guano water once weekly; of course, if the drainage be defective a weekly supply might prove injurious, but only under such circumstances.

Vines.—This is a season in which it may truly be said that it is more difficult to keep Grapes than to grow them. From many quarters we hear complaints of Grapes damping off and cracking, Hamburgs in particular. Unfortunately under such unusual atmospheric conditions the usual remedial measures are of little avail, but in hope of arresting the evil, recourse should be had to these remedies. First of all, remove all decayed berries as soon as perceived, for the mould spreads most rapidly. Keep a constant but gentle warmth in the pipes to ensure the air of the house being light and buoyant, and when the outside atmosphere is inclined to be so, open the ventilators wide and increase the heat in the pipes, in order to effectually expel stagnant moisture. Thorough ripeness, which has been almost impossible to attain this season, is no doubt the best preventative, and the fact that the Hamburg variety is affected the worst is due to the tender nature of the skin of the berry. The long-keeping varieties are rarely subject to the evil, and even then, it is because they have not been well ripened; hence the necessity to still continue the fires so long as there is any doubt on the matter. Outside borders, the Vines of which are carrying fruit, must now be protected from all further rainfall, for a chill at the roots, even if it does not cause cracking or damping, will most certainly aggravate it. If not already done the earliest Vines ought now to be pruned, the borders renovated, and the houses cleansed. The Vines ought to have a complete rest of at least six weeks. In the meantime protect the borders from rain by shutters or tarpaulin, and also from frost by a thick covering of Bracken or long litter. As a rule more time can now be spared for additional work, and it is also the best time to get together all materials for making Vine borders. If the soil be dug and stacked previously to the winter, any injurious insects, &c., in it would probably be destroyed by frosts, whilst the soil would certainly be benefited by exposure, provided it did not get sodden. Precautionary measures in regard to this point should therefore be taken.

Peaches and Nectarines.—The previous remarks in reference to these have urged the desirability of thinning out all superfluous shoots as soon as the fruit is gathered, in order to render the ripening and full development of the buds more certain by the free action of light and air. If the trees have suffered from spider, thrips, or fly, well wash them with the garden engine, and syringe daily till the parasites have entirely disappeared. Inside borders will still require water, though not so much as when in full growth. It is a gross error to ever allow the borders to become dry, for this is the principal cause which predisposes the trees to drop their buds before they are expanded. In all forcing operations, we ought, as far as possible, to imitate Nature, and a valuable practical lesson is taught in regard to the matter of watering, if we only take into consideration the large amount of water that Peaches get in the open air when in a resting condition, yet how rarely do they shed their buds! If the trees in the early houses have entirely shed their leaves, any pruning required may be done at once, and the houses made tidy for the winter. If the lifting and replanting of gross growing trees were done when advised, the roots will by this time have started into the fresh soil. They must not lack water, but be kept gently at work; a light mulching of stable litter over the border would greatly assist the formation of roots by maintaining an equable condition both of moisture and temperature. The houses should be kept as cool as possible. Those that are to be planted this autumn should be commenced at once, as the most suitable time

to plant is just before the trees lose their foliage. In selecting varieties early and late kinds should be chosen for the same house, as by this means the supply of fruit may be had in succession for a much longer period.

Strawberries.—The remarks on these (p. 222) are still applicable in every particular, for, unfortunately, the weather still remain, unchanged. It will be necessary to place the plants in their winter quarters as early as possible, for though they are apparently so robust they are still immature, and a sharp frost would severely check them. Our plan of wintering consists in plunging them in cinder ashes in turf pits, and protecting them with shutters in severe or very wet weather; at other times they have full exposure and are watered when required. By growing the variety Vicomtesse Hérisart de Thury, the production of Strawberries in autumn and winter is rendered an easy matter, as we have numbers of plants in pots now splendidly set with fruit. I have gathered good fruit from plants in the open air several times during the past fortnight, and if the weather should prove favourable there will be a plentiful supply for some time to come. The fruit gathered from the open ground is the produce of the earliest forced plants, which were planted out early in April, and from which our best present season's runners were obtained. Those that are fruiting in pots were also forced in the spring in 5-in. pots, and afterwards shaken out and repotted in fresh compost in pots of the same size. Still, I think the production of autumn Strawberries superfluous, as they will not be appreciated at a season when other fruits are so plentiful; yet it is well to know that they can easily be had if required.

Figs.—Established trees are still fruiting very freely, but the season is getting so advanced that, taking into account how valuable an early crop of Figs is, it is preferable to sacrifice the remainder in order to obtain a crop early; therefore the trees should be gradually inured to the full amount of ventilation that can be given till finally, if practicable, the lights may be entirely removed for a short time. Any trees in pots that have been placed in the open air to induce rest must be occasionally examined to see that they are not sodden on account of imperfect drainage. The safest position for them now is a cool orchard house or pit, as a few degrees of frost would seriously injure any fruit-bearing spurs that are not thoroughly ripened. Hitherto we have grown no other kind than the Brown Turkey, but a few days ago we had the privilege to see a large house containing several scores of plants of the Negro Largo variety, which in every respect were very fine. This has been added to our stock under the impression that it may even supersede the Brown Turkey; at any rate, it seems to be a first-class variety for pot culture.

Melons.—The season for these has been but an indifferent one, so that its close can scarcely be regretted. Swelling fruits will require abundant bottom and atmospheric heat in order to ensure good quality. Water will not be required much now; at the same time it is well to remember that dryness is adverse to the production of good fruit. A moderate supply of water, well preserved foliage, plenty of air, and warmth, never fail to produce high-flavoured Melons.—W. W.

Kitchen Garden.

Happily the weather has at length sufficiently improved as to permit of the speedy eradication of weeds, which is now imperative in order to admit all the air possible to the over-succulent growths of Broccoli, Sprouts, Cauliflowers, and Cabbages, so as to harden their tissues. Old beds of the latter prove so extremely valuable as Sprouts that they are worthy of special attention at this season, such as the removal of all decayed leaves, and even some of the largest that are not decayed, so as to induce the development of Sprouts. The ground should also be deeply stirred, not only for the destruction of the weeds but for the aëration of the soil. With us Brussels Sprouts have grown so abnormally tall that by way of keeping them upright we have had to earth them unusually high, and are now removing a portion of the stem-leaves, so as to admit light and air to the Sprouts. The earthing up of all the Cabbage tribe that are large enough for the operation, should be done at once for the sake of protection from the effects of the wind, and also for the free action of the air to the land; any other benefit derived from such a practice is of a doubtful nature, and if it were not necessary for the reasons above given, the earthing up system had better be abandoned. Both Celery and Cardoons require attention as to earthing, and should be tied with bast previous to the operation, in order to prevent the soil getting into the centres of the plants. The Celery-fly is unusually prevalent this season, and we find a sprinkling of soot applied once weekly an effective antidote, for though it does not destroy the pest outright, it hinders the spread of it. Cauliflowers that are now turning in, will need daily attention to keep them from injury by frost; break the leaves over the flowers, or, if a quantity be ready for use, and it is found necessary to prolong the supply, take them up with the entire stems, and hang them in a cool shed,

head downwards; in such a position I have known them keep for six weeks. Veitch's Autumn Giant and Sutton's King of the Cauliflowers are both excellent autumn and early winter varieties. By far the best early variety I have yet grown is Dean's Early Snowball. It is at least three weeks earlier than that excellent kind the Early Dwarf Erfurt, with heads at least equal to it in size, and in colour much superior, being almost pure white; it is here valued so highly that no other early kind has been sown for spring use, and the plants are now being planted out in handlights, a dozen in each, and in early spring will be thinned to four or five. The lids of the protectors will not be used till there are appearances of sharp frosts, as it is necessary, to safe wintering, that a sturdy hardening growth should be encouraged from the first, for if the plants, either by neglect of airing or overcrowding in the seed-beds, get drawn, but-toning will certainly follow. Prick out all the reserve plants in any sheltered spots. Where protecting material could be easily applied in the event of severe frosts, any that are to be wintered in cold frames should now be got out also; but meanwhile, as in the case of those in handlights, they should have the fullest exposure. Lettuce, Endive, and Herbs for winter use all demand particular attention at the present time, so that there may be no scarcity when required. Protection should be in readiness, as frosts may now occur any night. A few Tomatoes have, at last, ripened against south walls, and any not yet ripe, and that are of a size large enough to be used, should be cut, and, if hung in a warm airy house, will ripen perfectly. In our case we have found it necessary to practice this method, as the plants are badly attacked by the Potato disease. The storing of Beetroots and Carrots will soon be necessary, but as the former are small and still growing, it will be better to leave them till real danger is imminent. As a rule we winter them in the ground, and use Bracken or straw for protection, and by this method the roots are more tender than when pulled up and stored in sand. Look over the stores of Potatoes and Onions in wet weather. The latter will keep best if bunched and hung up rather than laid on shelves. This season they are so full of water that decay is sure to be prevalent, and following the above advice will ensure their better preservation. In the forcing department, Rhubarb and Seakale will soon demand attention. Apples being scarce, Rhubarb will be in great request, and it will therefore be advisable to introduce a batch into a warm temperature at once. Give abundant ventilation to French Beans in pits, and from now all the sowings will do best in pots; to keep up a continuous supply it is necessary to sow a batch fortnightly. Tomatoes that are fruiting indoors should have the growths kept thin and the fruit also; they may then be expected to continue in fruit throughout the winter. "Vick's Criterion" is the best of all kinds I have yet tried for pot culture. —W. W.

Parks and Open Spaces.

Herbaceous borders should now be carefully looked over, removing all decayed stems and leaves which would otherwise give shelter for insects and other pests, as they are now unusually numerous, and every possible means should be taken to destroy them—such as hand-picking and spreading lime, soot, &c., over the surface of the ground. If these precautions are neglected many valuable plants must inevitably suffer from their depredations. A clean cut is most essential in everything connected with pruning, so it is important that a sharp knife should be used for cutting away the woody stems, or much damage may result to the stools of some kinds in consequence of the loosening of the roots and splitting the stems. The soil must be forked between the plants and all vacancies made good by dividing old stools, &c. Pansies, Daisies, Arabises, Aubrietias, and such-like spring flowering plants should be put out at once, so that they may establish themselves before severe weather sets in. Bulbs of various kinds should also be planted in the most open spots, placing a thin layer of silver sand beneath them to prevent rotting and accelerate the formation of roots. For this purpose Hyacinths, Tulips, and similar kinds which flowered last spring will be found extremely useful if they have been properly treated and stored. They should be planted in clumps of six, eight, or ten, and from 2 in. to 3 in. apart; a small stick should be placed in the centre to prevent injury when digging or stepping on the borders, and as a guide when mulching them for protection during the winter, if necessary. Herbaceous plants, it must be remembered, do not ripen their stems and foliage simultaneously, therefore only those whose stems are ripened should be cut down, as many kinds would be thus injured if they contain active sap. Many churchyard gardens, town squares, and similar places will soon present a bare appearance, which will prevail throughout the winter in consequence of the injudicious selection of shrubs in planting. Strange to say, many still persist in planting such evergreen trees, shrubs, and Conifers which have not the slightest chance of thriving, they are therefore unsightly and a continuous source of trouble and expense. In places where planting is scanty, the bare ground is always an eye-

sore. My idea of a shrubbery is that it should be formed by various kinds of plants, with the foliage harmoniously blended, and planted sufficiently wide apart so as to obviate overcrowding. From time to time they should be pruned or even taken away where it is desirable. Where specimen plants are required they should be planted singly, as I consider the shrubbery is certainly not the place for them. As it is useless to plant varieties that are quite unsuitable, it is far better to plant those possessing qualities that render them capable of thriving in smoky districts, though they may not be the handsomest. Amongst the best shrubs for such positions are undoubtedly the Privet, Euonymus, and Aucuba. Of Privets there are several varieties which can be recommended, such as the oval-leaved, the Japanese, the evergreen, the Box-leaved, &c. Of Euonymuses there are also several kinds which may with safety be planted, the green-leaved varieties being the best and strongest. All these, as well as the Privets, naturally form pretty shrubs, and should not be clipped into all kinds of shapes, but allowed to grow freely. The Aucuba is too well known to need description. In wet seasons when the foliage is kept in a fairly clean condition the leaves of these shrubs present a fine lustrous appearance. The varieties of Forsythia and Rhamnus will also do well in town gardens. The broad-leaved kind of the latter grows into large specimens in a very few years. The Rose of Sharon (*Hypericum calycinum*) is a well known and excellent shrub for forming undergrowth, and for planting on the borders of plantations, &c. Amongst deciduous shrubs the varieties of Ribes are perhaps the best, and should always be included in the list. The Sumachs, too, are very useful for such places. The planting season being near at hand I advocate a trial of these shrubs, allowing one shrub to the square yard at least. In all small gardens there should be facilities for washing the foliage of shrubs with hose when necessary. After planting, the surface of the soil should be covered to a depth of about 2 in. with well-rotted manure or horse droppings mixed with road scrapings in equal proportions, the latter collected off flint metalled roads is the best for the purpose.—C. DENNIS.

Extracts from my Diary.—October 13 to 19.

FLOWERS.—Moving variegated Alyssums and Verbenas from cold frames into greenhouse. Cutting Holly hedges, Cotoneasters and Jessamine on walls, and nailing in shoots to cover the wall. Shaking out Pelargoniums from old pots and re-potting them. Taking up Souvenir de la Malmaison Carnations layered outside, potting them, and placing them in cold houses. Shifting cuttings of zonal Pelargoniums from 3-in. to 5-in. pots. Potting a few Pelargoniums and Fuchsias for winter blooming. Sponging Stephanotis and Allamanda on roof of stove. Putting in cuttings of Roses. Planting border with Violets and also one with Violas, Wallflowers, and Daisies. Taking up Spiræas from outside border and potting them in 5-in. pots for forcing.

FRUIT.—Gathering the remainder of Apples, viz., Wellington, Golden Reinette, Royal Russet, and Norfolk Beefing. Tying and stopping Melons in houses. Gathering Sweet Chestnuts and storing them away in fruit room. Looking over Grapes in late Vinery and cutting out laterals and shanked berries.

VEGETABLES.—Gathering Tomatoes and placing them in Vinery to ripen. Sowing Mustard and Cress in boxes in heat. Trenching border for Tripoli Onions. Putting first batch of Osborn's Forcing French Beans into 7-in. pots. Tying and stopping Tomatoes in houses. Giving earliest Celery a final banking up. Tying and thinning out shoots of winter Cucumbers, and fumigating for the prevention and destruction of greenfly. Sowing Gilbert's Selected Parsley in pans. Turning Mushroom manure. Top-dressing Cucumbers.—R. GILBERT.

What's in a Name?—The cut-leaved variety of our Western prairie Dock is called *Silphium terebinthaceum* var. *pinnatifidum*; the Russian Daisy of our borders, *Chrysanthemum Tchihatchewii*; an annual Composite we grow, *Achropappus schkuhrioides*; the Climbing Hydrangea, *Schizophragma hydrangeoides*; our wild, white-fringed Orchis, *Habenaria blephariglotis*; and a common window-basket plant, *Chlorophytum Sternbergianum*.—*American Agriculturist*.

Chloride of Lime.—A French contemporary states that if a little of this be spread on the soil, rats, mice, and insects will at once desert it. Plants may be easily protected by it from insect plagues, by simply brushing over their stems with a solution of it. It has often been noticed that a patch which has been treated in this way remains free from grubs, while the unprotected beds round about are literally devastated. Fruit trees may be guarded from their attacks by attaching to the stems pieces of tow smeared with a mixture of chloride of lime and hog's lard. Ants and grubs already in possession will then rapidly vacate their position.

THE INDOOR GARDEN.

ARISTOLOCHIA RINGENS.

UNDER the above name two very different species have been confounded. The true *Aristolochia ringens*, of which the accompanying engraving is a correct representation of a portion of a living plant which flowered in Messrs. Veitch's nursery last month, does not appear to be generally known in European gardens. Indeed, so far as we are aware, this is the first time that this species has flowered outside of a botanic garden in Europe. We remember having seen it in flower at Kew in 1863, and we secured specimens for the herbarium at the time, which exist as a record of the fact. But although so little known in Europe, it has been introduced into East Indian gardens, and it is also cultivated in Guatemala, Central-

America. It is a native of New Granada and Venezuela, and, according to Grisebach, in his "Flora of the British West Indian Islands," also of Jamaica, but this is probably an error arising from a slip of the pen in the Kew herbaria, where one of Purdie's, apparently a New Granadian specimen, is written up "Jamaica, Purdie." The flowers vary considerably in size, according to the vigour of the plant, sometimes attaining a length of 8 in., but usually they are only about 5 in. or 6 in. long; and the colouration is equally variable in intensity. On a pale ground we have a netted venation of dark purple. The tubular portion of the flower is paler than the lips, the ground colour of the upper lip passing into purple. Sometimes the leaves are as much as 7 in. or 8 in. across. In such a numerous genus as *Aristolochia* it is difficult to say which are the most ornamental or most curious. Many persons would not regard any of the kinds as really ornamental; and it is a fact that the most showy ones require a large space in which to develop

their full size. Upwards of 150 species are known, and they are widely dispersed in tropical, sub-tropical, and temperate regions, excluding South Africa and some of the Pacific Islands. *A. ringens* requires a warm greenhouse, and attains the flowering state in a moderate space of time. It was sent to Messrs. Veitch by the late Mr. G. Wallis, who collected it in New Granada. Among hardy species the North American *A. Sipho*, a deciduous trailer or climber with ample heart-shaped leaves and small inconspicuous flowers, is the best. It rapidly covers a large space, but it requires some support; and it is a useful plant where bold foliage is suitable. The flowers have a green tube tinged with purple, becoming gradually smaller upwards, then suddenly expanding into a horizontal, nearly circular limb. *A. Clematitis* is an effective, erect-growing, herbaceous kind, with clusters of small yellow flowers. It is a suitable plant for the "wild" garden. There is perhaps not another genus in the vegetable kingdom which exhibits such a variety in the form, size, &c., of the flowers. Those

of the last are little more than 1 in. long, and the tube is very narrow in the middle, and gradually expanding upwards into an open mouth, and prolonged on one side only in the form of a lip. The three-tailed kind (*A. tricaudata*) is an arboreal species with large oblong leaves, and dark purple and white flowers, the broad open tube of which is prolonged into three slender tails, 3 in. or 4 in. long, reminding one of the flowers of some *Masdevallia*. Goldie's Birthwort (*A. Goldieana*) is perhaps the most extraordinary of the whole of the species. It has, with the exception of *Rafflesia*, the largest flowers of any known plant. On a double-sized plate of the "Botanical Magazine," which is as large as a page of THE GARDEN, a single flower could only be represented half its natural size. In shape it is like an enormous three-lobed vase (each lobe ending in a short tail) nearly 18 in. across the top, and narrowing downwards into a cylindrical tube obliquely,

bent upon itself, the lower position forming the foot of the vase. This singular plant is a native of Old Calabar, in western tropical Africa, where it was discovered by the Rev. W. C. Thomson, who succeeded in introducing living specimens into the Glasgow Botanic Garden, where it flowered in 1867. Of course this gigantic plant can only be grown in a spacious hot-house. *A. grandiflora* is a Brazilian species with flowers as long as those of the last named, but the limb of the perianth or floral envelope is developed on one side into a single long slender tail nearly a foot in length. Another very curious species from the same country may be seen in flower in the Palm stove at Kew at the present time. It is (*A. ornithocephala*) which has flowers similar in shape to those of *A. ringens* but about three times as large, the upper lip being dilated into a limb 6 in. to 9 in. wide. It may be mentioned that what we have called the upper lip is perhaps more correctly the lower, and it is uppermost on account



The Gaping-flowered *Aristolochia* (*A. ringens*), half natural size.

of the flowering branches being pendent. Messrs. Veitch have, or had, living plants of an equally curious West African species, *A. promissa*, the singular flowers of which extend into three tails sometimes as much as 2 ft. in length. One might go on almost indefinitely pointing out the peculiarities of various species. Besides the large growing species noted, there are many others of smaller dimensions, suitable for the lovers of the curious among plants who have but little space. Thus *A. trilobata* is a slender climber with flowers resembling the small pitchers of a *Nepenthes*, but bent on themselves in the opposite direction, and the part answering to the lid of the pitcher prolonged into a slender twisted tail 6 in. in length.

W. B. HEMSLEY.

Two Rare Orchids.—There are now in flower in the Pine-apple Nursery two interesting Indian Orchids, viz., *Luisia Psyche*

with creamy white petals each about 1 in. in length, and a labellum of the same width, curiously corrugated with a blackish crimson-like enamel, the whole flower greatly resembling a beetle; and *Luisia brachystachys*, the yellow lipped variety, the flowers of which are small but curious.—JAMES O'BRIEN.

TREATMENT OF ODONTOGLOSSUMS.

I HAVE read with much interest the remarks of Mr. O'Brien at page 305 in reference to this subject. Such practical articles are worth much. Still, I consider in the case of *Odontoglossums* that in seeking to discover the conditions which best suit them one might be doing "a dangerous thing." No one has attempted to show that these plants may not be cultivated more or less successfully under what is called cool treatment. It is no doubt desirable, from a nurseryman's point of view, to show that any subject can be grown by this or that method that is likely to be popular with the many, but the object of the gardener is to discover the right way, modify it as he may afterwards. There are two or three points broached in Mr. O'Brien's paper which it would be interesting to know more about. Firstly, if he finds it necessary to remove his *Odontoglossums* to a perfectly cold house with a north aspect by the beginning of May, why does he remove them to a warmer house at the beginning of September, when the temperature outside is considerably higher than in May? Secondly, in almost all miscellaneous collections of cool *Odontoglossums* that I have seen, the plants were in all stages of growth towards autumn, some just maturing their pseudo-bulbs, and others with these parts but partially developed, or at a stage when it is never desirable to rest an Orchid which has pseudo-bulbs to mature. Would Mr. O'Brien recommend all these to be treated alike? In other words, would he submit the matured plants and the growing ones to a minimum temperature of 45°? as the general tenor of his remarks would lead one to infer. It is a sound practice in my opinion to maintain a growing temperature until all such plants have matured their growth. Lastly, I should like to know what kind of growth the finest of Mr. O'Brien's plants of *O. Alexandræ* and *O. cirrhosum* made between May and September in the north house, the length of their growths, and the size of the bulbs, as well as the number of flowers produced to a spike on plants so treated for the last few years? I am not prepared to deny Mr. O'Brien's assertion that the pseudo-bulbs of *Odontoglossums* are formed as quickly in a temperature of 55° as they are in one of 75°, because under the treatment given them by me they make two sets of bulbs in a year, but those made during the summer are the largest and the best. In the rage after cool Orchids we are, I think, in danger of running to the other extreme. There are many kinds recommended in some trade lists as "cool" Orchids, which, to subject them to such treatment, would be very unwise. I have seen not a few collections of *Odontoglossums* or cool Orchids, but none of them treated in the manner described by Mr. O'Brien. He lays much stress on the supposed fact that the cool system suits small growers. Apart from the fact that it is quite as often convenient for smaller growers to grow their plants in a warm house, such as a Vinery, what is to hinder those who grow their plants in an unheated frame or house to give them as high a temperature in summer just as easily as a cool one by simply economising sun-heat a little more? C.

TRAINING PLANTS IN POTS.

NEARLY all plants under pot culture require some little training in the way of pinching, pruning, or supporting, and fast-growing plants are improved by being cut back occasionally rather closely, more especially after flowering. Any plants that are capable of supporting themselves in an erect position do not require stakes. Those that have a loose, rambling habit may be brought into shape by pinching when the shoots are young, which will, if properly attended to, give a clumsy-looking subject a graceful appearance. To stake a plant well requires a trained eye and skilful fingers. Some acquire the art naturally, whilst to others it is a difficult task, hence the reason why so many ungainly-looking specimens are met with. The addition of a few slender twigs, if adeptly placed, will often improve a plant considerably. Of course, for home use the plants might be quite as well without so much setting up; but, unless they are skilfully manipulated, they will not do for exhibition purposes. Therefore, those who aspire to take a leading position at exhibitions must learn to train plants neatly and with as few sticks as possible. Small neat sticks, painted green, look the best, and can be made in bad weather. Those that are made from double laths, that is, deal laths of a double thickness, that will easily bend, are the most suitable material and are readily procurable. A large number may be made in a short time, and afterwards a thin coat of green paint will preserve the wood and make them look less conspicuous. As it must be a

disadvantage to the plant to have the ball pierced, and perhaps the roots injured by having sticks thrust in, therefore as few as possible should be employed, and these should not be inserted in the ball deeper than is necessary in order to obtain the requisite firmness. Most plants will require to be gone over and have their supports and ties re-adjusted annually and most, if not all, of this work should be done, as much as possible, during the dull season.

E. HOEDAY.

THE ZEBRA-STRIPED RUSH.

OF the many kinds of leaf variegation amongst plants there are few that have the markings arranged in transverse bars. Notable instances of this kind of leaf marking are the plant under notice, and the Zebra-striped Grass (*Eulalia japonica zebrina*), illustrated in *THE GARDEN*, Vol. XIV., p. 263, which is one of the most beautiful of hardy Grasses. The Zebra-striped Rush is apparently a form of our common native species (*Juncus communis*). Like the Zebra Grass it originated in Japan, and similarly has reached Europe by way of America. It has been introduced by Messrs. Veitch, from a plant in whose nursery the annexed woodcut was prepared. It is a striking plant when associated with others, as its peculiarly rigid habit of growth and singular marking stand out in bold relief. Though it has not been



The Zebra-striped Rush.

grown entirely in the open air, it will most probably prove to be quite hardy and retain its variegation, and if so, it will make a capital subject for planting amongst other moisture-loving plants.

W. G.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Dendrobium primulinum.—For a useful, easily grown, and thoroughly free flowering variety to grow as a companion to the useful *D. nobile* I do not know a better than the one named above. The last edition of Williams' "Orchid Manual" describes *D. primulinum* as a fine subject for exhibition, and says it is rare, but it is probably plentiful now. It formed the greater bulk of a quantity of Orchids collected by a friend of my employer, and sent here from Burmah twelve months ago last May. All the plants appear to be seedlings, for scarcely any two are alike, some being so inferior in the flower as to be comparatively worthless, while others are large, beautiful, and slightly fragrant. The flowers are all more or less white and pink, but in some of the varieties the lip is broad and pure white and the other parts of a rosy or purplish-red tint. All flower late in spring and the blossoms are borne along each side of the stem. This kind is an exceedingly free grower; though much withered on arrival, all grew strongly and flowered last spring. This season they have made shoots at least twice as long and as thick as

those which they made last in their native habitat. The consignment also contained plants of the beautiful *Dendrobium chrysotoxum*, some of which have proved very inferior, having small greenish-yellow flowers, while in others they were of the other extreme. In the same importation we were fortunate in securing a large and healthy mass of a broader leaved and larger flowered variety of the *Cypripedium Boxalli* than I have yet seen.—J. S. W.

Ficus repens for Edging.—Although this plant is usually seen growing on walls, I find it very useful as a pot plant for edging any kind of stages on which plants are arranged for effect. Single plants from cuttings, potted in from 3-in. to 6-in. pots, and allowed to hang down naturally, soon make suitable plants for the purpose, as they become quickly furnished with gracefully pendent shoots, which form a pleasing fringe of green. It is too often the case that stone or brick-supported stages in conservatories become green and discoloured after a few years from the consequent dampness, and nothing hides this defect or increases the effect of a well-arranged group of plants on the stages so well as a fringe formed by this plant.—J. GROOM.

Storing Bedding Pelargoniums.—Though these have proved a failure in the open air this season we cannot afford to discard them, and we are now making preparation for storing a large number of last years plants of the scarlet flowered type, as they are not only much larger at planting out time, but as a rule they are more floriferous. When a display is required early in summer, old plants should be freely mixed in the beds, while for supplying flowers for furnishing vases they should always be used, as even in favourable years young stock plants require the greatest part of the season to acquire well furnished specimens. The best plan to adopt is to lift the plants before they are in the least injured by frost, then strip off the largest leaves, leaving the small terminal ones. Do not cut the shoots in at all, but defer that operation till spring when every point will make a good plant, and if cut down in autumn the old plants are much more likely to damp off. They should be placed moderately close in pots or boxes in light sandy soil, and one good watering given to settle the soil around them, after which they should only have enough water to keep them from shrivelling. They may be wintered in any pit or house where enough heat is available to keep out frost and dispel damp. In spring, as the days lengthen, they may be shaken out and potted or placed in boxes according to convenience, and will always well repay the labour bestowed on them.—J. G.

Tropæolum Lobbianum Perfection.—This rich-coloured climbing *Tropæolum* is now in fine flower at Heckfield, where it is grown in large pots in a cool house. The shoots are trained to wires. Here it blooms with marvellous abundance, and will do so all the winter, unless very severe frost intervenes; but other plants are grown in a warm house to give a supply of flowers if the others should fail. As a flower to furnish a rich glow of colour in winter, this kind is unrivalled, and it is remarkable that a garden of any pretensions should be found without it, grown either for vase decoration in the summer or for winter use.—A. D.

Primula sinensis.—It may be of interest to know that in an average season there is not much difficulty in wintering these *Primulas* in a cold frame. I have now plants in good health which were during last winter in an ordinary garden frame. To protect them from the severity of the weather the frames had wrappers put over them at night, but on every favourable opportunity the lights were slightly opened, and in this way they passed the winter and bloomed freely in the spring. I am persuaded that cold frames might with a little constant attention be made available for wintering many plants that are supposed by amateurs to need a considerable amount of heat.—HUNTLEY BROOK.

Filmy Ferns.—I have read with interest the notes lately contributed to THE GARDEN on the hardness of Filmy Ferns, especially that at page 310. The peculiar beauty of these Ferns, and the fact (apparently not well known to many amateurs) that they will grow where scarcely a blade of Grass will live, render them of special interest to any persons living in places unfavourable to ordinary vegetation. My experience during last winter was perhaps somewhat exceptional. I dug out of the almost solid clay a hole 2 ft. deep, over which I placed three sheets of glass, and during the severe weather, when the thermometer registered 20° to 30° of frost, I covered the glass with a piece of ordinary packer's canvas. In this hole *Todea superba* passed the winter without a frond suffering in the least degree. In another similar place were wintered *Todea pellucida*, *Hymenophyllum demissum*, *Trichomanes radicans*, and others, with complete immunity from the severity of the weather. Several other kinds would no doubt be perfectly as hardy, if placed under similar circumstances; the experiment is well worth trying by those who possess several duplicates.—HUNTLEY BROOK, *Bury, Lancashire.*

TREES, SHRUBS, AND WOODLANDS.

WATERSIDE PLANTING.

THE formation of plantations by the seaside has already been treated of at some length in THE GARDEN, Vol. XIV., page 427. I was as much surprised as pleased to find from a note (p. 290) that, in addition to the trees recommended for sea-shore planting, the handsome *Pinus insignis* is also well adapted for such situations, as is proved by the success which has attended the specimens planted at Bodorgan, in Anglesea. The deep Grass-green colour of its leaves, which are very closely arranged on the branches, and its habit of branching very low, render it altogether peculiarly appropriate for bleak situations by the waterside. When planted upon a dry soil it ripens its wood very early in autumn, and its liability to become affected by frost is thereby much lessened, as this is generally the cause of its failure in severe winters when planted upon a rich moist soil in a low lying district. An unbroken expanse of water, unless it be a sea, bay, cove, &c., and, consequently, diversified by the ebb and flow of the tide is seldom an object of much interest when its banks are bare of trees or unbroken by bold and irregular masses of rock. When, however, its margin is embellished by trees and shrubs the water, like a mirror, reflects the objects upon its banks, which to the observer even appears to be multiplied. Tree vegetation may be considered as the natural accompaniment of water, and as such it may not only clothe the banks, but also give apparent connection to different lakes, and partially conceal outlines and boundaries, giving in each case variety and soften or tone down any prevailing harshness.

Besides the intrinsic beauty of water-side trees, which alone is sufficient to commend them to the notice of all lovers of Nature, they are admirably adapted, when skilfully arranged, to put a generous deceit on the spectators, and effect the noblest designs by easy methods. Thus the smallest rise of ground upon the opposite bank may, by skilful planting, be made to appear much greater than it really is. The smallest island, if planted near its margin with spreading trees, behind which others of a fast-growing kind are placed, in order to thrust forward the outer ones, will gradually appear to become larger. The same remark is applicable to the planting of all projections. Where an embankment or a dam is necessary to keep the water at different levels, its entire length may be concealed by judicious planting. The apparent form and extent of water may also be considerably altered by a skilful management of the light and shade to be obtained by planting trees or opening out spaces amongst thick masses near the water. In order to give extent, as much light as possible should be thrown upon the distant parts; and if the banks slope back gently they admit of the reflection of more sky, and thus enlarge the picture. Unless, however, there is high ground behind, most of the advantages of reflection are lost. Water upon high ground, unless it be to a great extent surrounded by trees, causes a constant glare of light. Another disadvantage under such circumstances is that in such a position it generally becomes very much foreshortened.

For the purposes of the planter the form of a sheet of water is not a matter of primary importance, as the more irregular the outline the greater is the scope afforded him, and enables projecting portions to be made bolder, and bays and inlets apparently deeper by throwing a denser shade upon the recesses. The planting should be proportioned to the extent of the water, as heavy masses of wood appear out of place beside small lakes; so very small clumps or too many single trees produce an opposite effect in connection with larger ones. With regard to the kinds of trees suited for waterside planting it may be remarked that, speaking generally, Pines and Firs do not harmonise with such situations; the Cedar and Pinaster are decidedly the best of the Coniferous kinds. The overhanging branches of the Cedar, and the rugged bark, the irregular top, and dense whorls of branches upon the Pinaster, give them a peculiar fitness for such positions. The Plane, Wych Elm, Beech, Hornbeam, Ash, and Alder are also well adapted. The Acacia when growing near water generally sends up a great number of suckers. The deep fresh green of the Alder, combined with its luxuriance of growth, renders it an object of interest, and in old age the Alder is by many people scarcely to be distinguished from the Oak, and this character well adapts it for substituting the appearance of an Oak plantation, where a continuous effect is required, in soil too wet for the latter. The branches of the Wych Elm and the Plane are remarkably striking in situations where they overhang the water. The White or Silver Willow, with its long and extremely flexible shoots, which rapidly grow when planted in a deep, good, and moist soil, is even more graceful than the Weeping kind. The Weeping Ash, when its head is not allowed to become too much rounded, is particularly suited to sloping banks. The Birch, also, by the lightness and gracefulness of its form is also well adapted to the waterside.

The greatest difficulty, however, is often experienced in the management of the undergrowths near the margins of lakes and streams, for where these consist of subjects which have to be cut back periodically to prevent their growing into, and thereby injuring, the standards, the naked appearance of such banks is highly objectionable and unpicturesque. On this account it is far better in such situations to plant Thorns, Hollies, Yews, Buckthorns, and even Laurels and Elders, and thus secure a permanent screen.

In planting for effect in the line of sight between the house and the water's edge, it should not be forgotten that a few trees near the eye have an equal effect with a much larger number farther removed; and that, while deciduous trees of various kinds will in time, by the help of a little pruning, grow out of the way so as to admit of distant objects being seen between their stems and underneath their heads, the Coniferous kinds will, by the extension of their lower branches, shut out more of the view year after year. These are points which should never be lost sight of in planting in a line with water or any other distant object of interest.

Though the trees named above are, among the denizens of our woods and forests, probably the best that could be selected for the waterside, almost any kind of planting is preferable to the formal waving lines which are but too commonly seen upon the margins of dressed lakes and pieces of artificial water—if, indeed, it can be called dressing that completely strips the object of its solicitude. Not even those flowing lines and endless curves which “lead the eye a wanton chase” will give half the charm to a waterside path that is imparted by judicious planting. Here, as elsewhere, all abruptness in planting should be avoided, for the real beauty and interest of the work centres in transitions which are so gradual as to be almost imperceptible, and in which no violence is done to Nature. Formal rows or regular clumps of trees by the waterside are in the highest degree objectionable, so likewise are prominent fences of any kind; for the reflecting powers of the water by doubling the objects add greatly to their formality.

Pluckley, Kent.

A. J. BURROWS.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Virgilia lutea.—The beauty of the foliage of this tree in the early autumn season renders it worthy of more extensive cultivation than is generally bestowed upon it. A fine specimen, standing at the bottom of the terrace and close to the boundaries of the park at Surrenden-Dering, in Kent, and which has a background of masses of Elm and other large-sized trees, is at the present time an object of great beauty. Its bright yellow and orange coloured tints are conspicuous among the dark green of the surrounding foliage and the lighter hues of the spreading Planes.—A. J. B.

Well Shaped Hedges.—Apropos of hedges in general I have been particularly struck by that on each side of the Brighton and South Coast Railway as far as I have travelled along it, *i. e.*, from London to Brighton, and thence to Portsmouth. It has been recently clipped, and its shape is that of a wedge, with its base on the ground. It is 2 ft. thick at the bottom, tapering quite to a point at the top. The height seemed about 4½ ft. Such a shape must always ensure a dense and luxuriant growth, and the density of this is something remarkable. Perhaps an “Old Sailor” may not be much of an authority on such matters, but in spite of that I will venture to affirm that such a line (or lines rather) of hedges should serve as a model anywhere. They are of quickset throughout.—ASHLEY LATOMBE, *Commander, R.N.*

Plantations.—Upon the drier soils nearly all kinds of young trees have made extraordinary growth during the past summer. In many situations however, upon the more retentive lands, Chestnut, Birch, Oak, and some other kinds which were polled last season, have died back altogether or made no progress. On such soils the work of filling up will be heavy and expensive. No season for the last twenty years has furnished stronger evidence of the great advantages of thorough drainage and early planting. Acorns are conspicuous by their absence, Ash-keys are abundant, the fruits of the Spanish Chestnuts are very slow in coming to maturity, and those of the Horse Chestnut and Walnut are scarce. Altogether the season is a very unpromising one for the collector of tree seeds. Even the hedge Nuts have produced but an indifferent crop.—A. J. B.

Remarkable Beeches.—Near to Parkanour, in Athlone, the residence of Mr. J. Burgess, stand two Beeches which, at a short distance, resemble heaps of leaves more than trees. They were found in the woods sixty years since, and are from 6 ft. to 8 ft. in height and 15 ft. diameter, and of dense drooping habit. Upon creeping inside, I found them to branch off at 2 ft. or 3 ft. from the ground, where one was nearly 5 ft. in circumference. The arms and branches are not unlike corkscrews. The inferior branches and

matted rubbish, if cleared out, would greatly improve their appearance, as the singular growth would then be visible. They might, if sent out, become a valuable adjunct to the upright Yew, which flourishes in Ireland, the finest of which I have yet seen was 2½ ft. high and 12 ft. through, and well filled in the centre.—C. ISHAM.

Darwin's Barberry in Towns.—We have recently recorded the value of this as a seashore shrub, and we also notice that it has done very well as a London plant, even in the horrible clay of the Regent's Park.

THE LIBRARY.

Rural Affairs.—We have received Vols. VII. and VIII. of Thomas's “Rural Affairs” (Tucker & Sons, Albany, N. Y.), a work full of practical information, and illustrated profusely with useful, and often pretty, woodcuts. Some of the matter is reprinted from the *Country Gentleman*, which has long had the reputation of being the leading American agricultural journal, and in this handy form it will be more convenient than in the pages of a large journal. The horticultural papers are in all cases marked by care, thoughtfulness, and practical knowledge of the subject. When any æsthetic question, such as landscape gardening is touched upon, there is evidence of taste and right feeling for what is best in the art. Many practical hints and neat woodcuts in these volumes would be useful to English as well as American readers. We take the following extract as showing its utility:

Relative Time of Ripening of Pears.

July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April
Sum.		Ant. Paradise.							
Doyenne,						Jos. de Malines.			
Madeline.		Seckel	Bosc			Prince's St. Germain.			
			Diel.						
	Rostiezer.					Alençon			
	Giffard.		Dix.						
			Comice.		Columbia.	Easter Beurré.			
	Brandywine.		Angouleme						
	Clapp.		Louise Bonne.		Winkfield.				
	Bartlett.								
	Tyson.		Onondaga		Passe Colmar.				
			Urbaniste.						
	Bloodgood.				Lawrence				
	Dearborn.		Belle Lucative.						
				Anjou.					
	Oshan I.		Superfin		Nelis.				
	Ott.		Buffum						
		Boussock.		Clairgeau.					
		Flem. Beauty.		Black Worcester.					
		Howell		Catillac					
	Washington.								
		Sheldon.		Glou Morceau.					
		Genesee		Pound.					

Propagation of Pansies, Violas, and Calceolarias.

—October is the right time to propagate these, some preferring the first and some the latter part of the month; but we have generally found about the second and third week to be as suitable a time as any. Than these, no bedding plants are more easily propagated, and none are easier kept during the winter. Any rough frame, made with four boards about 1 ft. wide each, and nailed together, answers perfectly for holding and wintering hundreds of them in; or they will do without a frame if dibbled in at the bottom of a south wall, where they can be protected with cloths, mats, Fern, or other material during severe weather. Young Pansies and Violas will bear a great deal of frost; but Calceolarias are more tender in this respect, though in all other ways they succeed under the same treatment as the Pansies and Violas. They strike root freely in a mixture of loam, leaf soil, or old Mushroom manure, and sand. In damp positions a layer of the latter should also be spread over the surface to the depth of 1 in., as this will keep the surface sweet during the short dull days. The cuttings of the Calceolarias which we prefer most are the hardy points of the shoots without bloom; but the

Pansies and Violas throw out plenty of side shoots which answer well for cuttings. They are all made in the ordinary way by trimming their lower ends with a sharp knife. The best cuttings are those about the length of one's forefinger, and they may be planted about 1½ in. or 2 in. apart each way. At times, when we had no more suitable accommodation for these cuttings, we have rooted quantities of them in old boxes, and these were shifted about as the weather or other circumstances might require.—CAMBRIAN.

GARDEN DESTROYERS.

THE PLUM TREE TORTRIX.

(*ANTITHESIA PRUNIANA*.)

At times the caterpillars of this very common little moth are very destructive in orchards and gardens where Plums and Cherries are grown, for in the spring, just when the trees are coming into blossom, these little caterpillars are hatched, and at once ensconce themselves among the flowers and commence feeding on them; when the flowers are over they change their quarters and betake themselves to the



The Plum Tree Moth.

leaves, on which they feed until fully grown. If Plum and Cherry trees have been much attacked by these insects, it will easily be understood that the crop must suffer very considerably in quantity, for not only is a large proportion of the flowers destroyed, but, if the leaves are injured to any great extent, the vigour of the trees must consequently be much impaired. It is always very difficult to recommend any effectual means for destroying insects which attack orchard trees, as, on account of their size, it is almost impossible to reach all parts. It appears that in the case of this insect there is nothing to be done when in the egg or caterpillar state, beyond gathering and destroying the leaves which are rolled up, for these generally contain a caterpillar or chrysalis. The stems of the trees should always be kept free from Moss and loose pieces of bark, as such places afford shelter during the winter months to the second brood of chrysalides. It is also better to keep the ground near the stems of the trees free from Grass or other herbage for the same reason. Smaller trees, such as espaliers, and those trained against walls, can be more easily dealt with, and I should recommend that these trees should be carefully looked over when in flower, and that all blossoms which appear to be attacked or affected in any way should be picked off; any leaves which are curled up should also be removed, taking care that the caterpillar does not drop out of the leaf and escape during the operation. The common Blackthorn or Sloe is attacked in the same manner by this insect. The moths appear about the end of March or in April, according to the season, and

lay their eggs near the buds. The caterpillars hatched from these eggs attack the flowers, and, when these are past, they resort to the leaves, which they roll up and fasten with silken threads, and in this shelter they live and feed on the leaves. When fully grown, they line their habitation with threads, and become chrysalides, from which the perfect insects emerge in August. The caterpillars of the second brood have to live entirely on the leaves. When fully grown, they descend, and, finding some sheltered place under Moss or among Grass, become chrysalides, remaining in this condition until the spring. The Plum tree Tortrix belongs to the family Tortricidæ, most of the members of which, when in the caterpillar state, are injurious to vegetation. I have already in these articles called attention to two very destructive species (on September, 21, 1878, to Bergmann's Tortrix, and on November 2, 1878, to the Codling Moth). This family may easily be distinguished from its near relations, the Yponomeutidæ and Tineidæ, when in the perfect state, by the shape of the wings, which are much broader, and in the upper wings the front margin has a decided shoulder, and is nearly parallel to the opposite margin. It differs also from the Geometridæ in the shape of the front wings, which in the latter family are very large, and have little or no shoulder, and their margins are far from parallel; in the caterpillar state they also differ, for the caterpillars of the Geometridæ have only five pairs of legs, and move in a peculiar manner, on account of which they are called loopers, while the caterpillars of the Tortricidæ have eight pairs of feet, and move in the ordinary manner. The Plum tree Tortrix measures about 5 in. across its wings when they are fully opened. The front pair are of a brownish-black colour for more than the basal half of the wing; the remainder is whitish, clouded with grey, the tip and end margin being greyish. The lower wings are greyish-black. The head, thorax, and body are greyish. The caterpillars, when fully grown, are about 1½ in. long. When first hatched they are of a pale yellow colour, but after the second change of skin they are dirty green, sometimes almost grey, with the head, the back of the first joint, and the extremity of the last joint of the body, and the first three pairs of legs, shining black. The body is covered with little black tubercles bearing a few stiff hairs. The first three, the sixth, seventh, eighth, ninth, and last joints bear legs. The chrysalis is brown; the edges of the segments are furnished with a row of small spines.

G. S. S.

[In my paper on the Cabbage moth in THE GARDEN of Sept. 13, I gave by mistake its generic name as *Hadena*, by which it is known by many authors; but Mr. Stainton, whose nomenclature I intended to follow, uses, I find, its better-known name of *Mamestra brassica*.—G. S. S.]

NEW YORK HORTICULTURAL SOCIETY.

THE annual autumn exhibition of this society was opened to the public at Madison Square Garden, in New York City, on the evening of the 17th of September last. The building in which it was held is large and well adapted for a display of horticultural products, being now brilliantly illuminated by electricity, which it may be remarked is the only artificial light adapted to a proper display of flowers. A most attractive novelty in the floral department was a tank of exquisite Water Lilies, contributed by Mr. E. D. Sturtevant, of Bordentown, N. J. Among these was a genuine Nilotic Lotus, with huge nodding flowers standing above the circular leaves; also fine specimens of *Nymphaea dentata*, *N. odorata*, and a beautiful and interesting hybrid from Indian varieties, with delicate pink blooms. All these were open-air plants, some having borne flowers 12 in. in diameter during the past summer. Some rare evergreens were shown by Parsons & Sons; although the display was larger in the way of deciduous shrubs with variegated foliage. Their Japan Golden or Sun-ray Pine was very pretty, as were also their brilliant feathery Japanese Maples. Mr. John S. Burt contributed a fine collection of Crotons, Palms, Achimenes, Caladiums, and a few of the new Dracenæ. Mr. Louis Menand and Mr. Isaac Buchanan had also some fine specimens in this class. Mr. W. C. Wilson showed a splendid Croton of the Earl of Derby sort. The display of cut flowers was unusually large and attractive, Mr. Peter Henderson and Mr. James Vick being the largest exhibitors in this way. Mr. Roenbeck, the celebrated Fern enthusiast of New Jersey, was again on the ground with a beautiful collection. The show of fruit was exceptionally good, perhaps better than any that ever graced an exhibition table in the metropolis. Chief among these were the fine collections of Messrs. Eliwanger & Barry, E. P. Roe, Peter Henderson, and others. The variety was large and the handsome colouring and form of the specimens shown gave evidence of careful culture fine healthy growth. The vegetable display was also one of considerable merit. Henderson's new seedling Potato, St. Patrick, attracted much attention, and beautifully smooth, amber-coloured tubers they were. For these as well as other vegetables he was awarded

a prize, and also for his Caladiums, Dahlias, Verbenas, cut flowers, and foreign Grapes. Some of the other principal prizes were as follows : To Messrs. Ellwanger & Barry, for Grapes and fruit ; to Mr. Roenbeck, for Ferns ; to Mrs. Morgan, for Orchids ; to Mr. W. C. Wilson, for Marantas and Crotons ; to Mr. Isaac Buchanan, for Lycopodiums and Selaginellas ; to Mrs. Davidson, for autumn leaves and pressed Ferns ; to Messrs. Woolson & Co., for hardy herbaceous perennials ; to Mr. James Vick, for cut flowers, Lilies, and Asters ; to Mr. J. S. Burt, for stove and greenhouse plants ; and to Mr. L. Merrand, for Orchids, Agaves, Succulents, and Erica.

H. HENDRICKS.
Kingston, N. Y.

ANSWERS TO CORRESPONDENTS.

Weeds on Walks. Can you inform me the best way to eradicate weeds on garden paths? Is sulphuric acid and water a good cure? K. [Sulphuric acid applied at the rate of 1 lb. to 20 gallons of water will effectually destroy weeds on walks, and all other vegetable matter, so that in using it is necessary to exercise great care so as to prevent the liquid touching Box edgings, Grass verges, &c. It is also desirable to use the liquid in dry weather only, for if a heavy shower took place directly after the application, the acid would be washed into the verges, &c. Provided these precautions are adopted, sulphuric acid is one of the best weed destroyers on walks that can be named. Gas water, used in a pure state, is also an effectual remedy, but the same precaution must be taken to prevent it injuring the verges.—W. W.]

Grapes Splitting.—I should be glad to know the best time to light fires for an early Vinery. We generally light the beginning of January or February, and have always had abundance. Last year we lighted at the end of September, and only had twenty-five bunches. How soon should Grapes be ripe after forcing has begun? About fourteen days since some Grapes began splitting (not ripe), white and black; the former were worse. Last year the same Vines are quite good, and not one berry is split. In the same house some white Grapes are splitting as above described. We close the house early, and have had a fire twice only just to keep out frost in winter, but it is not a forcing house. The Vines planted are inside the house, which is 25 ft. in width, 16 ft. high, 180 ft. long, with a southern aspect. We do not keep the house very damp. Some Peaches on high walls in this house were very good and ripe six weeks since. In a long house 250 ft. long by 12 ft. with a height of 10 ft., where there was never a fire, I notice some white Grapes splitting. They are planted inside entirely against a wall. They are all white and just ripening. Why do the Grapes split? and what is the cure?—K. [The best time to begin forcing must always depend on the state of the Vines. Forcing should never be attempted unless the Vines have been well ripened and have had at least two months rest; and this period your Vines could not have had, seeing that they were only started in January or February, and were again started into growth at the end of September. The wonder is not that you had only twenty-five bunches but that you had any at all. In your case we should consider the beginning of the year the best time to begin forcing, and the Grapes ought then to be ripe by midsummer. The splitting of Grapes is most generally caused by atmospheric moisture, but sometimes by superabundant root moisture; as you apply so little artificial heat, there can be no doubt whatever that in your case the splitting is caused by humidity in the atmosphere. The remedy is therefore obvious, viz., apply artificial heat, and free ventilation in order to carry off the moisture.—W. W.]

Gas Lime and Ammoniacal Liquor as a Manure.—Could you tell me whether either gas lime, ammoniacal liquor, or sulphate of ammonia makes a good manure for flowers, such as, say, Roses, Geraniums, Abutilons, annuals, &c., or if so, which is the best and how should it be applied?—E. L. [Gas lime is a dangerous compound to use fresh from the works, but by exposure to the atmosphere the sulphates soon decompose. The best way to use it is to mix it with vegetable refuse or ordinary garden soil, and not apply it to the ground till it has been mixed for at least three months; all the deleterious gases will have then escaped, and it then makes a good manure for all soils that are benefited by the application of lime. Certainly it is not a good manure for flowers, but for vegetable crops generally it is beneficial. Ammoniacal liquor or sulphate of ammonia is a good manure for all the kinds of plants mentioned, but it requires to be used in a very diluted state, say one of the liquor to ten of clear water, and the plants should not be watered with it oftener than twice a week. The nature of this manure is to promote wood growth and deep green foliage at the expense of flowers, which tendency can only be obviated by the use of weak solutions, and not too frequently applied.—W. W.]

Asparagus Dying from Wet.—In answer to a question put by "B. H." at p. 313 of THE GARDEN, relative to the causes of his Asparagus dying from wet, M. Godefroy-Lebeuf, the celebrated Asparagus grower of Argenteuil, writes in the following terms: "It is not only to the autumn rains that we must attribute the failure of the Asparagus crop in Wales, but also to the defective method of culture which is there practised. I am almost convinced that the Asparagus spoken of by 'B. H.' was not unearthed during the autumn. The effect of this operation is not only to allow free access of air to the stool, but it also helps it to ripen. Under these conditions the plant is much better able to resist the damp and cold than when it is covered over with the thick layer of mould which is generally left on the stool. In support of what I advance I can give an instance of a plantation made in a peaty soil, which is inundated every winter, but Asparagus grown in it succeeds most perfectly. The facts quoted by 'B. H.' only occur in Asparagus plantations in which the old system of culture is adopted. What I state, however, must not be taken in too absolute a sense, for I will not guarantee that all soils are naturally fitted for growing Asparagus; but they can all be made so at a very small cost. When we have at our disposal only slightly porous soils that are very damp in the winter, we must drain them by digging a number of trenches, following the incline of the land, of from 1 ft. 8 in. in depth, 2 ft. in width, and 10 ft. apart. On the beds thus formed we throw the soil which we have taken out of the trenches. The soil of the beds, consequently, is heightened by so much earth. This operation should be performed early in the autumn, so as to give the newly made beds time to settle down, as Asparagus must always be planted in firm soil. At the time of planting we must follow the directions given in the articles which have lately appeared over my signature in THE GARDEN, taking care, however, to plant less deep in proportion as the soil is damper or more compact. As it is always convenient to have sufficient soil close at hand for earthing up, we must plant at greater distances apart when the stools have not been planted deeply. We must also keep the spaces between the rows of Aspar-

agus well dug, so that the water does not make a natural gutter of the trenches in which the Asparagus is planted. The facts cited by 'B. H.' have only occurred this year in a few localities in the northern and midland districts of France, and they have always been accounted for by the fact of the precautions spoken of above not having been adopted. I am obliged to 'B. H.' for calling attention to this subject, and I shall always be pleased to answer any questions relating to Asparagus which the readers of THE GARDEN may put to me. Mr. Robinson, by calling special attention to the subject of Asparagus growing in England, has placed a fresh source of profit in the hands of the English market gardener, who may learn a useful lesson from what is going on at Argenteuil and in other districts where Asparagus is grown on a large scale. In these localities there are no poor growers, and at Argenteuil this year's crop of Asparagus will enable our farmers to feel little or nothing of the ruin that would otherwise have fallen on them. Owing to the hopeless condition of our Vines our Grapes are still green, and those which have taken colour have damped off immediately. The loss to our Vine growers, who generally produce 200,000 hectolitres of wine in good years, may easily be guessed, when it is stated that the labourers in the Vineyards gain five and six francs a day, all of which will be lost this year; but by growing Asparagus they will, at any rate, make up for part of their fearful losses.—GODEFROY-LEBEUF.

E. P. Legge. If our correspondent would call on Mr. Godefroy-Lebeuf some day, at Argenteuil, when the culture or produce might be seen, he would probably soon conclude that there is yet a good deal to be changed in its culture here. The articles alluded to were written for the climate of France and not for England, though, as there is so very much in common between the climate of northern France and England, we thought the ideas of a good French cultivator could not fail to be interesting in days when more attention is being paid to this vegetable. In your estimate of the French Asparagus we can in no way agree.

Fruiting of *Cycas revoluta*.—D. G.—The fruiting of this Cycad is not an uncommon occurrence, though it is doubtful if the plant has been in the place for fifty years without producing fruits.

Sourp.—The length of time required for Passiflora fruits to ripen depends upon the circumstances under which the plant is growing, the weather, and the kind it is, in ignorance of which we are unable to answer you.

Italia. Try Louis Van Houtte's nursery, which is in the neighbourhood you mention.

Stoes.—We are unable to refer you to any place for the purpose you name.

W. G. Daintree. Apply to M. Godefroy-Lebeuf, Argenteuil, France.

Names of Plants.—E. L.—The plant figure you allude to is that of *Ceropegia Gardneri*, a stove climbing plant belonging to the Asclepiadaceæ; it is a native of Ceylon.—H. G. W.—The Mullein is *Verbascum nigrum*, a British plant.—W. L. D.—It appears to be a leaf of *Francoa sonchifolia*, but we cannot be certain without seeing the flowers.—L. R.—*Athenia filiformis* (Naiadeæ).—C.—The Pears were not ripe; therefore cannot be named accurately.—S. B.—1, *Aster Amellus*; 2, A. *Chapmanni*; 3, A. *versicolor*; 4, A. *grandiflorus*; 5, A. *Novæ Angliæ*.—Ferra.—1, *Lygodium scandens*; 2, *L. dichotomum*; 3, *L. japonicum*; 4, *Pteris serrulata*.—S. B. M.—1, *Rudbeckia speciosa*; 2, *Dahlia glabrata*; 3, probably a leaf of a *Silphium*; 4, *Anemone vitifolia* (distinct from *A. japonica*); 5, send again when in better condition.—Dublin.—1, *Berberidopsis corallina*; 2, is apparently *Callixene polyphylla*; 3, *Adiantum tenerum*; 4, a spray of an *Artemisia*; send when in flower.—T. S.—The Escallonia is a fine one, and we will endeavour to ascertain the name.—Z. Y. X.—*Retinospora squarrosa*.—F. E.—1, *Bupleurum fruticosum*; 2, *Alonsoa incisifolia*; 3, *Phlomis ferruginea*; 4, send when in flower.—Subscriber.—One of the numerous *Potentillas* of the European Alps, but from the scanty material sent it cannot be named correctly.—W. H. M. and H. B. Next week.—C. B. K.—1, *Eryngium amethystinum*; 2, *Arctostaphylos Uva-ursi*; 3, *Aspidium Louchitzi*; 4, *Selaginella inaequalifolia*; 5, *Asplenium flabellifolium*.—J. McDonald.—1, *Polystichum Louchitzi*; 2, *Athyrium Filix-femina Victoriae*; 3, A. *F. praevenans*; 4, *Nephrodium decursivopinnatum*; 5, *Athyrium Filix-femina Rileyi*; 6, A. *F. multifidum*.

Books.—C. D.—"Eubridge's Domestic Floriculture," obtainable at our office.—H. W.—1, No. It is Rivers' "Orchard House," which can be obtained from this office also; 2, Yes.

Clematis.—Second Pruning.—It is not generally known that the species and varieties of Clematis may be induced to bloom the second time by cutting back the plant immediately under the part that bore flowers nearest the ground. Clematis Jackmanni, which blooms late in June, is only one instance where in a month or so after pruning abundant flowers appear; few varieties, indeed, surpass it in the freedom with which it thus blooms. When we consider how much the addition of this ever-blooming quality enhances the charm of the Clematis, it seems surprising that an understanding of the fact has not been more generally attained.

Hydrangea paniculata.—Fortunately for the varied attractions of lawns, *H. paniculata grandiflora* has at last obtained general acceptance as an ornamental shrub of the first rank. But we must not merge the attractions of the lesser in those of the greater, nor confuse *H. paniculata* with its variety *H. paniculata grandiflora*. Few indeed know or realise that such a shrub exists as *Hydrangea paniculata*, but it is a very distinct plant nevertheless, possessing valuable peculiarities of its own. Instead of blooming in August and September, it flowers late in June and early July. These flowers are smaller than those of *H. paniculata grandiflora*, with erect, instead of drooping, trusses or spikes of inflorescence. They are also of a pure white colour, that does not fade into purple and crimson decay, like *H. paniculata grandiflora*. The sterile flowers are, moreover, less numerous in the type than in the variety, and the leaves as well as the trusses of bloom are certainly smaller and less coarse. Practically *H. paniculata* is unknown to the trade, but none the less does it deserve honourable mention for its date of blooming and fine general habit. Our own specimens came direct from Japan through the medium of Mr. Thomas Hogg.—S. PARSONS, in *Rural New Yorker*.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NOTES OF THE WEEK.

Botanic Garden, Cambridge.—We have much pleasure in announcing that Mr. R. Irwin Lynch has been appointed curator of this garden. Mr. Lynch had held, until recently, an important post in the Royal Gardens at Kew, where he had been for several years. His training there has specially fitted him for the management of such a garden as that at Cambridge, and we think the selection an excellent one. It would be difficult to say whether a man with a botanical training only, or a gardener merely acquainted with ordinary collections of plants and their culture, would do most harm in a botanic garden. Mr. Lynch combines the thorough horticultural training with exactly the kind of botany desirable in such a case—a very wide knowledge of living plants both hardy and tender. We therefore look to see the Cambridge garden assume, under his management, a very important place among our botanic gardens. The situation of the garden is a very desirable one, more open and airy than is usual in such places, and the extent is such as to allow of a better collection of trees than in the old gardens of the Chelsea type. The soil seems well suited to the health of a great many hardy plants, and we have seen a many good plants and rare there during the past sixteen years. There is a fine belt of trees surrounding the garden, which when we last saw it was sadly in want of a careful overhaul. The trees had grown very much together, and many of them were spoiled. This belt carefully "gone over" and the more common species cleared away to give full room to the rarer kinds, and the margin broken and extended here and there, would form a very fine feature, and be a good arboretum in itself. The Cambridge garden, like most other botanical gardens, suffers a good deal from the common system of trying to arrange a garden as a book or herbarium is arranged. The true way is to have the full collections of important plants, but grow them where they thrive best and look best. We may hope for a healthy change in this direction at the hands of the young men now being appointed to our various botanical gardens. It were too much to expect them to do away at once with the dismal open air herbarium, but they may here and there make a beginning by showing that a good collection and a beautiful garden are in no way incompatible. We have more than once shown in THE GARDEN that the very best collections we have in the country are not unfrequently disposed in the most charming manner.

Pachystoma Thompsoni.—Of this extremely rare Orchid there is now a finely flowered specimen in Messrs. Veitch's nursery. Its bulbs, broadly lance-shaped foliage, and style of growth remind one of the kinds of Pleione. Its flowers are produced singly from the base of the bulbs, and are about 3 in. across, with narrow pointed pure white segments of waxy texture; the lip, a deep rich purple, is about $\frac{1}{2}$ in. long, very narrow, and much pointed, and has a singularly twisted appearance, forming quite a semicircle. Its wing-like appendages are greenish and copiously spotted with chocolate. Altogether it is a beautiful species and one that will undoubtedly find favour with lovers of orchidaceous plants. It was exhibited by Messrs. Veitch at South Kensington on Tuesday last, and was deservedly awarded a first-class certificate.

Kiosque in Regent's Park.—The note in THE GARDEN of last week led me to look at this, and I quite agree with the remarks therein made about it. It dominates and much detracts from the beauty of the fine sweep of ground west of the Central Avenue, and anybody may see who looks towards the Avenue from this, the largest expanse in the Park. The number of chairs and beaten paths, and all the other features of a tea-house of this sort are no addition to the charms of a public park, and, as you have well pointed out, are not necessary in this case, inasmuch as a few minutes' walk suffices to reach places where such a structure would not be so objectionable as in the centre of a park like this, and dominating the finest landscape in it.

Cynoches Warszewiczii.—Of all the singular Orchids that have come under our notice this is the most remarkable, and it is one of the most notable instances of what is called dimorphism, or the production of two kinds of organs on the same individual, that we have seen. It is far from being a showy plant, as its flowers are green in every part and consequently somewhat inconspicuous. One set of flowers are borne on a raceme from 15 in. to 18 in. long, and have narrow reflexed segments, a lip with about ten fringe-like

appendages, and a part which has a peculiar twist similar to that of a swan's neck; hence the origin of the generic name. The other flowers are very dissimilar as regards form, being much larger in every part, and in form more nearly resembling an ordinary Orchid flower; they are moreover borne on a short instead of a long stem. This remarkable plant was exhibited by Mr. Bull at the last meeting of the Royal Horticultural Society, where it attracted considerable attention and was awarded a Botanical certificate.

Carey's Crinum (*C. Careyanum*).—This lovely species, certainly one of the best of tropical Crinums, is now in flower in the Palm house at Kew, and is deservedly much admired. In foliage it scarcely differs from that of some of the commoner types, such as *C. asiaticum*. The flowers are somewhat larger, more shallow, and of a spotless white. They emit a delicious fragrance, which, in a small house, would be almost overpowering. It is to be regretted that these charming bulbous plants are not more generally cultivated than they are, a fact the more surprising when it is well known that they are amongst the most beautiful of tropical flowers. *C. Careyanum* is a native of the Mauritius and Seychelles Islands.

Illicit Commission.—As the bribing of persons holding offices of trust is now before the public, I venture to enclose a specimen just to hand of offers commonly made with the view of corrupting architects.—R. HESKETH, 13, *St. Swithin's Lane, E.C.* "Dear Sir,—In anticipation of the approaching planting season, we venture to introduce ourselves to your notice, in the hope that you may be able to place some business in our hands. We hold an enormous stock of exceptionally fine and well rooted shrubs of every description, which we are prepared to sell at very moderate prices, and on any orders that you can introduce to us we shall be glad to allow you a handsome commission. Trusting we may hear from you, we are, dear Sir, yours faithfully, ———, *Times*.

Autumn Flowers at Tooting.—Messrs. Barr & Sugden's grounds are now very gay with the autumn-flowering kinds of Colchicum and Crocus. Of the latter, *C. speciosus* is a beautiful species, with dark purple flowers delicately pencilled and feathered with darker lines. *C. pulchellus* is also a pretty kind; the violet-purple flowers with yellow throats and white anthers render it very distinct. Of Colchicums there are a great variety. The charming *C. speciosum* may be seen in many forms; some deep rose, others of a very pale tint, with the other varieties of every intermediate hue. The chequered kinds, such as *C. variegatum* and *C. Parkinsoni*, are also very attractive, and the singular markings render them highly interesting. The common kinds, such as *C. autumnale* with its several forms, and *C. byzantinum*, are, of course, very plentiful and make a fine display.

The Looking-glass Tree (*Heritiera macrophylla*).—A huge specimen of this handsome Indian tree is now an object of much interest in the Palm house at Kew, as it is bedecked with a profusion of small white blossoms disposed in pendulous branching racemes, and produced in dense clusters from the upper parts of the branches. The foliage, too, is handsome, as the leaf-blades are broadly lance-shaped, and measure about 1 ft. in length, with a proportionate breadth. The leaves, moreover, are especially attractive in a young state, being at first of a pinkish tint, afterwards changing to a bronzy hue, and finally to a bright polished green. The silvery appearance of their surfaces gives rise to the name of Looking-glass tree, a name which is perhaps somewhat astruse as their reflective property is but small.

Lilies in October.—We have been pleased to notice a brilliant bloom of Lilies in Professor Owen's garden during the past few days—Lilies of the tigrinum and auratum types. As regards Lilies many satisfactory changes have been effected in our gardens within the past few years, and if we can regularly count them among our finest hardy flowers of October, it will be a great aid to the beauty of the autumnal garden. The unfortunate season may, however, have much to do with it; this, and some varieties of *Lilium auratum*, often bloom late in the season. Lilies of the tigrinum type in brilliant bloom in October are not so often seen. They were growing well among Roses.

Meadow Saffrons in Tufts of Violets.—One of the prettiest combinations of Meadow Saffrons possible may now be seen in Battersea Park. It consists of several tufts of them springing from a mass of Violets, the deep green of which forms a capital contrast to the purple blossoms of the Saffrons. The Violets obviate the naked appearance the Colchicums have when springing from the bare earth.

Coriaria ruscifolia.—Though by no means showy, this shrub attracts attention on account of its graceful habit, and the pretty effect which it produces when in flower. In its native habitat it attains a height of from 10 ft. to 18 ft., and has long slender branches, which have a tendency to arch. The flowers are small and green, produced from the axils of the leaves in drooping racemes from 8 in. to 12 in. in length. It is a desirable

plant for associating with plants of a less graceful habit in a conservatory. It is abundant throughout New Zealand, and is also a native of Chili.

Early-flowering Chrysanthemums.—Now that the display in Mr. Parker's nursery, Tooting, made by the large masses of hardy flowers, which have for some considerable time been very effective, is on the wane, these showy autumn flowers are very useful for brightening the fading beauty of their companions. As in the case of other kinds of plants, they are disposed in rows with the colours agreeably harmonised. Though there is not a great variety in colour amongst them, they may, by judicious arrangement, be made very effective, as is the case here. Their dwarf habit is another point in their favour, combined with their remarkably free-flowering habit. There appears to be only about a dozen really distinct varieties, so a selection of the best is not a difficult task.

William Tillery Melon.—This oval, beautifully-netted green-fleshed Melon is now fruiting abundantly at Clumber. It is named in compliment to the late Mr. Tillery, of Welbeck, and is said, both at Thoresby and at Clumber, to be one of the best of late Melons. It received a first-class certificate from the Fruit Committee at South Kensington.

Bedding Plants in the London Parks.—The Board of Works has once more, according to annual custom, announced its willingness to give, to all who may apply through the proper quarter, some of the bedding plants that are about to be lifted from the parks. That this is done with a good intention there can be no doubt, but it is to be feared that the number of them wintered alive is but small. It would be far more charitable and useful if any spare plants in pots at the bedding out season were so distributed, as not only would these be obtained at a time of the year when the recipient might hope to reap from the gift some benefit, but also being established before the winter set in, they would pass through that trying season for town plants with comparative ease. Such liberality as this would be worth commendation, but such gifts as are now offered are of very doubtful value.—A. D.

New Crimson Stock.—This is flowering beautifully at Thoresby, and is much more brilliant in colour than the older Crimson. The Wallflower-leaved White is also a great acquisition, its glossy deep green leaves setting off the snowy blossoms to better advantage than the grey foliage with which Stocks generally are furnished. Deprived of Stocks, the flower garden at Thoresby would lose much of the gaiety which it now possesses, and they last long, and are also very useful in a cut state.

Catlin's New Pelargoniums.—We understand that these, including Lizzie Smith, Edgar Catlin, and Fanny Thorpe, which were certificated by the Pelargonium Society at South Kensington this year, have passed into the hands of Messrs. Carter & Co., by whom they will be distributed next season.

TREES, SHRUBS, AND WOODLANDS.

PLANTING TREES A GOOD INVESTMENT.

THE commercial stagnation and severe agricultural depression through which this country is now passing threatens to seriously affect the value of landed property, and to sadly reduce the incomes derived from that hitherto considered sure and almost inexhaustible source of national wealth. Among the number of uncertain and often conflicting suggestions for relief the reduction of rents is one of the most popular amongst the general community who do not own land, without any consideration for the hardships which must be borne by landowners whose whole returns are in the shape of farm rents. For such it is to be feared there is little hope of immediate relief; but the owners of well-wooded estates have no such cause for alarm, as the profits, or rents, derived from the produce of their woods are not subject to the same deterioration, through the badness of the seasons and other natural causes, as those of the owners of arable land. This, of itself, should be a strong incentive to all landowners to plant a certain proportion of their estates with suitable trees of a marketable nature, even on land which in more prosperous times would give a larger return under tillage. Many thousands of acres of arable land do not return the owners thereof so much as twenty shillings per acre annually, and all such land would realise a larger profit under a crop of suitable trees. This has been so often proved by the most plain and indisputable evidence, that it is really surprising to find that so few of the numerous proprietors of land, bringing in less than twenty shillings per acre per annum, have yet entered upon a systematic course of planting operations, with a view to increase the profits they derive from their less remunerative lands. It is certainly not desirable, if it were ever likely to occur, that every acre of low rented land be occupied with a crop of forest trees; but a vast

increase in the plantations upon such land would most undoubtedly be advantageous to the owners of it, and beneficial to the country.

However, it is upon the millions of acres of waste and almost worthless land, so far as agriculture is concerned, that the most profitable plantations can be made, and the owners of it should not allow the present favourable opportunity to pass without adding largely to the area under forest trees upon their estates. The low price of labour, and the ease with which any amount of it can be obtained at the present time, should be a strong inducement to all enterprising landowners to engage at once in planting, upon a judicious and well-arranged plan, all the waste land upon which trees will grow, and other properly chosen ground, upon their estates. A safer investment of money, or a more profitable one, cannot easily be found in these times, besides the great benefits immediately derived by the country, through the employment of the present abundant supply of surplus labour. Estate improvements of every kind can now be carried out in the most economical manner, and those who employ the greatest amount of labour at the present cheap rate will reap the greatest reward at a future and not far distant time, when trade and wages regain their natural buoyancy.

In carrying out the formation of plantations and all estate improvements, a systematic plan of operations should be previously decided upon. In devising a proper scheme, the most experienced skill is necessary to ensure the most suitable and well-arranged plan, in accordance with the necessities of each case, and with a view to realising the greatest profit combined with the best effect. Every care being taken to devise a proper plan, it should be strictly adhered to, and uniformly carried out, under the direction of the most practical skill that can be obtained. Permanent works of the nature of estate improvements require great experience and judicious forethought in designing, and an equal amount of thoroughly experienced practical skill is necessary to carry them out with the best results. The employment of inexperienced knowledge in devising, and unpractised skill in carrying out such improvements, is a frequent and inevitable source of annoyance and loss to estate owners, and they act wisely who take good care to avoid these unpleasant difficulties by taking the best advice and employing the best skill that they can procure.

Journal of Forestry.

Washingtonia filifera.—The *Washingtonia* of Kellogg, as applied to the mammoth tree of California having failed because the distinction between it and the prior genus *Sequoia* not being maintained, Wendland, a noted authority on Palms, now proposes this for the *Pritchardia filifera*, the famous Palm of the Colorado River, which he contends, from recent examination, is not a *Pritchardia* at all. This Palm seems unfortunate in finding a home in nomenclature. First it was *Brahea*, then *Pritchardia*, and now *Washingtonia*.—*Gardener's Monthly*.

Eucalypti in Ireland.—It may be interesting to know that the under-mentioned five kinds of *Eucalyptus* stood out uninjured in the Earl of Annesley's garden at Castlewellan, Co. Down. Fifteen varieties in small pots were planted out for trial at the end of August, and received no protection whatever. Ten of the varieties succumbed to the severe cold. *E. coccifera*, *cornigera*, *Gunnei*, *Risdoni*, and *unigera* were not in the least injured but grew vigorously, and have made fine plants this season.—R.

Hedges.—Your correspondent who describes the shape of the hedges by the side of the railway near Brighton (p. 338) need not travel far to see plenty of hedges of the same shape, as most hedges when newly trimmed are made narrow at top, but invariably get wider as they get older, as repeated trimming renders them liable to get so. Perhaps the most noticeable example of hedge trimming out of the common way is in parts of Cheshire, where they are cut into a triangular form; taking a section of them the base would be quite 4 ft. thick, and the height about the same, the top or apex being like that of a roof. I was told that cattle were more afraid of a hedge of this shape than of any other; whether this is so or not I cannot say, but as each district has its peculiarity, this was the prevailing one in hedges in the neighbourhood alluded to, while in Kent the idea is to keep them as narrow as possible, often not more than 1 ft. in a full-grown hedge; and in some places the boast of some farmers is that a hare cannot get out of their fields at any place but the gate, so close are they at bottom. Of course it is not every one that is so, but many are, where attention to keeping them clean has been attended to; but I would like to see or hear of trials made of other plants beside the White Thorn for hedges. It is doubtless an excellent plant for the purpose, and probably the best at present known, but it is possible others may possess a certain amount of merit; and if none of your correspondents give us their ideas on this head, I will on some future occasion try to do so.—AN OLD GARDENER.

THE FLOWER GARDEN.

NEW BEDDING PLANTS.

HAVING, during the summer now drawing to a close, grown, for the purpose of trial and comparison, some of the new varieties of soft-wooded bedding plants sent out this spring for the first time by two leading firms of Edinburgh nurserymen, viz., Messrs. Downie & Laird and Messrs. Ireland & Thomson, I think that a few remarks as to their respective merits and demerits, as they have shown themselves in my garden, in the south of Ireland, on the sea-board of Cork Harbour, may not be unacceptable to such of your readers as take an interest in this highly ornamental and useful class of decorative plants. To commence with the bedding *Nasturtiums* or *Tropæolums*, of which three new varieties came to me named respectively *Clouded Gem*, *Glengarry*, and *Vesuvius*, I may say that the first, though a strong and vigorous grower, is yet of compact habit, producing large flowers of a bright orange, most of them finely streaked with a lighter colour, but the plant is not a very free bloomer; this fault may, however, disappear in a sunnier and more genial summer than that which has been vouchsafed to us this year. The second (*Glengarry*) is of a much lower-growing and compact habit, with smaller and lighter-coloured flowers, most profusely and continuously produced, and is a very pretty variety, and likely to be useful. *Vesuvius* is rather a coarse grower, but does not straggle; its blooms are of medium size, and of a fine deep glowing orange colour more or less streaked, but by no means so freely produced as in the case of the last-named variety. I may add that the Lambton Castle seedling *Tropæolum* (named after its raiser, Hunteri) has in poor soil been, and still continues, very bright and ornamental with me. In rich soil this variety runs too much to leaf, and does not flower at all so freely as in poor. Two new varieties of *Ageratum* were sent me, the one *Her Majesty*, from Edinburgh, though of a tolerably dwarf and compact habit of growth, has pale, dull-coloured flowers, and seems to me a variety of but little merit. The other, *Cannell's Gem*, from Swanley, is by a long way the dwarfiest and best *Ageratum* I have ever seen, and seems likely to be a most useful and desirable acquisition for carpet-bedding purposes, as it does not grow more than from 4 in. to 6 in. high, and produces fine deep purple-lilac flowers throughout the entire season with great profusion. A border of it inside one of *Mimulus moschatus Harrisoni* was exceedingly ornamental, and in a finer summer would have been better and brighter still. Only one new *Iresine* was sent out this year from the same nursery as *Ageratum Gem*; it is named *Brilliantissima*, and seems to be a highly-coloured sport from the old *I. Herbsti*, but like many highly-coloured varieties, it seems very deficient in constitutional vigour, and whatever it may do in a warmer and more genial summer, or as a pot plant for conservatory decoration, it certainly did no good out-of-doors with me this year, the plants hardly growing at all and being about the same size when taken up as when put out in June.

Five new varieties of *Lobelia Erinus* (besides an introduced species with golden flowers, named *L. lutea*) were sent to me mostly from Edinburgh. These were named *Pink Queen*, a variety with dark bronzy foliage and deep, but somewhat dull-coloured pink flowers; this variety is more curious than actually pretty, and a really bright rose-coloured variety with good-sized flowers is still a desideratum. *Lilac Queen* is, perhaps, the dwarfiest and most compact in habit of any variety yet sent out, the plants forming dense, round, little, ball-like cushions covered with small lilac flowers; this variety is capitally suited for edging a small bed with, and has been figured in the "*Floral Magazine*." Mrs. Ellice is a worthless variety, with a long straggling habit of growth and small thin pure white flowers. *Alba multiflora* is likewise a very inferior variety, also with a long straggling habit of growth, and much of it producing blossoms streaked with blue, and so not true to their pure white colour. *Lady Ross* is a vigorous, free, upright-growing variety with blooms of a

pleasing shade of deep blue with very small white eye. This is a very free and continuous bloomer, and one admirably suited for the late autumn season, as it is still covered with bloom-buds yet to open. The yellow-flowered species introduced from the Cape in 1774, and figured in "*Botanical Magazine*," vol. 32, in 1810, was almost lost to European gardens till recently re-introduced by a German firm at Erfurt. It is not a free bloomer, at all events in the open air, and is more curious than actually ornamental. W. E. G.

THE AUTUMNAL SPIRE LILY.

(HYACINTHUS CANDICANS.)

This is one of the most interesting of all large-growing recently introduced bulbous plants, and one which has proved to be hardy in many gardens, even after the exceptionally fatal winter of last year. Here, in the College Gardens, Dublin, a bulb planted by my predecessor, Mr. F. W. Moore, produced a spike 5 ft. 6 in. in height, bearing in all twenty-five flowers, and there are now some fine seed pods fast approaching maturity. The individual flowers on our spikes were exceptionally large, and being of snowy whiteness, and backed by a glossy dark-leaved *Holly*, they stood out with a fresh boldness that was the admiration of all our more discriminating plant-loving visitors. To many it was a novelty, and quite a little path was made across the border during its blooming season by those

who did not believe that "distance lent enchantment to the view." In waxiness and purity our flowers of this *Hyacinth* were, indeed, comparable with those of *Lapageria alba*, except that their effect in this instance was heightened by the black anthers which form such a prominent feature in the plucked blossoms so well shown in Mr. Hyde's engraving here annexed. Even in cold or bleak localities the plant might be grown in a corner, sheltered by plant-houses, or beneath a sunny wall, for it is well known that many Cape bulbs, such as *Crinum*, *Ixias*, *Watsonias*, and even such plants as *Hedychium Gardnerianum*, *Lilium giganteum*, and tropical *Solanums* are perfectly amenable to open air culture, if planted close to the

Flowers of *Hyacinthus candicans*.

foot of a warm plant-house wall. As a general rule, however, this, *Hyacinth* is well able to take care of itself, if well planted in a deep, rich sandy border, sheltered from cutting eastern winds. A correspondent in the last number of *THE GARDEN* (p. 326) gives us valuable information of some large bulbs grown in pots at Chester: "They were left out in the open air during the whole of last winter, in pots plunged half their depth in coal ashes. On one plant were counted some forty flowers and buds, the stems being over 5 ft. in height." How valuable such a brief and definite note really is can only be fully appreciated by the born-lover of beautiful hardy flowers. A year's experience in an inch of print. Ah! how many of us go rather to the other extreme, and spin out our inches of progress into column-long articles.

The bulbs of this plant may now be obtained in quantity. I have seen them advertised at 10s. per dozen, but by the hundred they would be much cheaper, and for cut flowers the plant would be worth twice the money for its wealth of refined wax-like flowers. B.

Spring Flowers in Autumn.—I never remember before now to have seen so many spring flowers in blossom at this season of the year. Of course a great many of them have come out in a straggling and imperfect sort of way, but the following plants and shrubs have flowered here during the last fortnight: *Saxifraga crassifolia*, *Daphne Cneorum*, *D. Dauphini*, *Weigela hortensis nivea*, *Berberis Darwini*, *Pittosporum Tobira*, *Aubrietia purpurea*, *Primula veris*, *P. intermedia*, *P. denticulata*, *P. cashmeriana*, *Pyrus japonica*, *Gentiana acaulis*, *Erysimum rupestre*, *Corydalis lutea*, *C. cava altiflora*, *Coronilla Emerus*, *Linum luteum*, *Pansy Paul Pry*, and *Auriculas*. *Polygala Chamaebuxus purpurea* is well on in bud. It has been a strange year altogether, and this seems in keeping with it.—H. EWBANK, *Ryde*.

THE ROCK-GARDEN AT YORK.

THE extensive nurseries of Messrs. Backhouse & Son afford at any time of the year a source of much interest to those fond of plants; whether it be a ramble through the rich collections of exotics from tropical and temperate climes, the many acres devoted to hardy ornamental trees and shrubs, or the herbaceous ground and rock-gardens, which teem with hardy plant wealth, every class will be found to be thoroughly well represented and managed. To the lover of hardy flowers the last-named department has an especial interest, inasmuch as it has, for many years past, received the special attention of the firm. To see the gems of Alpine regions so thoroughly at home under cultivation is indeed a treat; but it is not under ordinary conditions that they thrive so well, neither is the rockery on which they grow of ordinary construction. To those accustomed to see only the cosmopolitan style of rockery, which may be met with in most gardens, the impressions on first seeing the extensive and massive rock-garden here are not readily forgotten. Compared with this the so-called rockeries which universally lay claim to the name are mere dry heaps of rubbish. Here the huge craggy mass, which in some parts rises well nigh 30 ft. in height, with the steep declivities dipping into a placid miniature lake, around which are formed cavernous recesses and miniature ravines of every size and conceivable form, yet so natural and picturesque, is only to be compared with choice glimpses of Alpine scenery, which the presence of the thick, deep, irregular belt of thriving Conifers, whose tapering habit of growth so characteristic in such regions, much enhances. But where is the Alp on whose surface can be found the plant life of mountain regions from every quarter of the globe? It is at a glance apparent that this Alpine garden, so unique in design and arrangement, has been constructed with one primary end in view, and that is, the imitation of, as far as practicable, the native habitats of the plants. Picturesque beauty, however, has not been lost sight of, for the ponderous masses of rock, which in some cases are several tons in weight, are superimposed in so artistic a manner as to be a fascinating imitation of wild Nature. No handiwork of the plasterer is here to be seen, no cunningly wrought layers of cement over masses of rubbish, such as some notable "rockeries" are constructed of, but pure natural stone quarried some miles distant from York. By a skilful arrangement, the tortuous and undulating paths and flights of rugged steps, which intersect in all directions every portion of the diversified structure, are conveniently seen, and yet so studiously devised as to compel the visitor to concentrate attention on particular points. What a vast variety of plant life does this rock-garden present to view! Below in the weird-looking, cavern-like recesses formed by massive blocks of overhanging rocks, may be seen revelling in native vigour, shade and moisture-loving Ferns, and amongst them the beautiful pellucid-fronded Killarney and other native filmy Ferns luxuriating with their even more beautiful congeners from the Antipodes the *Todea superba* and others, which have braved the severe cold of our climate in the snug nooks in which they are planted. The sides of the adjacent rocks, whose extremities are submerged and thus suck up abundant moisture, form a foothold for colonies of moisture-loving plants, such as *Butterworts*, *Parnassias*, Ferns, *Droseras*, *Sundews*, &c., which everywhere sow themselves and grow in confused masses. Judging from their thriving appearance, their needs seem to be well supplied though they have but the bare rock and water from which to derive nutriment. Above there is every variety of aspect and degree of exposure, in order to suit the numerous requirements of all occupants; in fact, taken altogether, it is doubtful if there exists a hardy flower, be it Alpine or otherwise, that could not be accommodated exactly with its peculiar wants in such a rock garden as this. On the more exposed parts may be seen those that delight in the fullest exposure, provided their roots can penetrate the deep fissures of the rocks as they do here, while partially shaded positions are afforded for such plants as require less exposure, and actual shade is also provided for the denizens of woods and similar situations.

Any one intending to construct a rockery would do well to take a lesson from this one at York, for though its extent could be by no means imitated, in the majority of cases, still the principle of construction might be profitably studied, as it is on this point that many err more than in the selection of material of which it is to be constructed. That the proper way of adjusting stones in rockwork can be practised on even a small scale will be apparent to every one who has seen this structure, and but a short time ago I noticed a small rockery built in an exact imitation of the style of that in Messrs. Backhouses' nursery; though small, the arrangement of the stones and also the plants were quite in accordance with the original. This is but one instance of how a model may be imitated, and doubtless there are numbers who have practised the plan on a larger scale. If such an exemplary structure existed in the neighbourhood of London, it is doubtful if the ordinary grotesque piles one sees would be so prevalent, for persons would not tolerate the comparison, when it could be

remedied by simply altering the construction. If, for instance, there was a rockery worthy of the name in our national garden at Kew, so that the numbers of persons who seek advice on such matters could take a lesson, it would indeed be a boon. Besides, what a source of pleasure it would be, not only to those who are familiar with Alpine flowers from seeing them in their mountain homes, but also to the rapidly increasing community who are ever eager to obtain information as to the management of these beautiful plants, which may be grown by every one and in the smallest garden, provided they are at first placed under the necessary conditions of culture.

Instead of this, we have at Kew a paltry stony bank, placed under the shade of huge Elm trees, whose hungry roots form a network throughout the mass. It need scarcely be added that under these conditions Alpine plants will *not* thrive; consequently, many scores of lovely gems perish there annually which have been generously presented to the garden from all parts of the globe, and more particularly by English and Continental donors. With such enormous resources as these for acquiring a vast collection, combined with the fine position, unlimited space available there, and other exceptional advantages, Kew could have, and ought to have, an Alpine garden which would not only rival this unique rockery of the north, but be superior to any similar artificial structure known to exist, and constructed at a much less cost than it would take to erect and maintain a glass shed for housing some class of plants in which the public do not take interest, and from the scientific use that is made of them in a living state, might as well be in oblivion. But to revert to the main object of these remarks. The best time to see the York rockery is during May and June, when the majority of its occupants are in full beauty. At the time of my visit (a week ago) it was, nevertheless, far from being devoid of flowers for from many of the sheltered nooks were peeping the pretty nodding blossoms of the autumn-flowering *Cyclamens*, from the deep rosy-tinted flowers of the European kind (*C. europeum*) to the paler-hued and also spotless white blossoms of the Ivy-leaved Sowbread (*C. hederæfolium*), all of which are capital plants for enlivening rockwork and similar places in autumn and during the dull days of winter. Here and there on moist ledges were masses of the round-leaved *Pyrola* (*P. rotundifolia*), a pretty native plant, with spikes of pure white and deliciously fragrant blossoms, rising from a carpeting of deep green foliage. Primroses of all kinds grow unusually luxuriant here, and even the new Himalayan *P. rosea*, whose beautiful rosy blossoms first gladdened our eyes last spring, and which was considered a small-growing kind, is here found in large tufts, with leaves well-nigh 1 ft. long and of a bright deep green. It evidently likes a cool moist place, which also suits so well its handsome congeners, the *denticulata* and *capitata* section. Of the last-named kind there was a remarkably fine variety in flower. The pips were large, and the colour of the most intense rich purple invested with white mealy matter which formed a striking contrast. In flower also were a host of other beautiful plants, but comparatively few of the rarer kinds that are here abundant. As it is impossible to enumerate a tithe of the interesting plants that luxuriate here, these remarks must necessarily be restricted to a few of those which most attracted attention.

Amongst these were spreading masses of the European Alpine *Primulas*, all thriving admirably on the most exposed parts. The early-blooming *P. marginata*, which in most collections succeeds but indifferently, forms some of the largest of the patches; the effect they produce when covered with pretty violet-purple blossoms on a cushion of mealy leaves is most charming. This, by the way, must not be confused with the variety *marginata* of the yellow *Auricula*, which, though its leaves are similarly invested with white powder has, like the type, golden-yellow flowers. A point worth knowing in connection with the management of this Primrose is that it thrives best when planted horizontally in fissures; it is, moreover, far more effective than when seen in the ordinary way. The dense deep green rosettes of *P. spectabilis* are indicative that its requirements are well satisfied, for never have I seen such masses hitherto under culture; these also were chiefly grown in a horizontal position. The little Allioni's Primrose (*P. Allioni*), too, is as happy as in its mountain home, judging from its thrifty condition; indeed, one may see here, more or less largely represented, every Primrose yet introduced to our gardens; even the superb Himalayan *P. Stuarti* and Parry's Primrose from the Rocky Mountains, whose rich purple clusters of blossoms excite the envy of every lover of hardy flowers to possess it. Another host of beauties are the *Gentians*, of which the collection is particularly fine, from the common stemless *G. acaulis*, which is often met as an edging to garden walks, to that rare little gem of the Himalayas, which almost positively refuses to grow in our climate, notwithstanding the tender care bestowed on it. The charming *G. verna* of our own mountain districts is grown in abundance, and may be seen at every turn; this is perhaps the most satisfactory of dwarf-growing kinds, and the lovely cerulean hue of its flowers is only surpassed by such as *G. bavarica*, which, unfortunately, is not one that will thrive everywhere. Besides all the common kinds, one

may see the rarer ones also, including *G. pumila*, *ciliata*, *brachyphylla*, *imbricata*, *Fœrlichi*, &c., which in spring bedeck the rockery with their lovely flowers. Of the larger-growing species the new North American *G. affinis* was in flower; though not so showy as many of the others, it is a desirable plant on account of its free growth, compact habit, and rich blue flowers, which are produced abundantly. High in the most exposed portions, but so placed that its far-rooting, tiny threads can penetrate the deep fissures of the rocks, is that most exquisite Alpine gem the *Eritrichium nanum*. The difficulty attendant upon this plant under culture is apparently mastered here, if the appearance of the plants at present is any

nately one of the most difficult of all Alpines to manage under culture, but it is apparently at home here growing in a slanting crevice. Another rarity is *Crassiope fastigiata*, a plant which thrives so well at Glasnevin. There are at York broad masses of it, though it does not seem to grow so tall as at Glasnevin. It appears to require a partially shaded situation and a deep peaty soil. A similar situation suits the tree-like Club Mosses well, and they all flourish admirably here. It is to be regretted that such exquisite plants are not more known than they are, as they are totally unlike any ordinary type of plants, and can only be compared to liliputian Conifers. *Lycopodium complanatum* especially resembles miniature trees of



A Tuft of Mountain Flowers.

criterion. One of the principal points is not to allow the woolly foliage to be fully exposed to the weather; not that the plant is at all tender, for it is as hardy as the rocks themselves; but it cannot endure continuous wet on the leaves. The main portion of the stock is grown in frames, with the lights so arranged that while they effectually protect the plants from wet, there is a continuous current of air passing over them. This is a capital arrangement, and one that would suit many other woolly-leaved subjects.

Besides the various kinds of *Pyrola* that nestle in the more shady nooks there are other Ericaceous plants of extreme rarity, such as the tiny *Andromeda hypnoides*, which is in itself a treasure, especially when studded with pretty waxy-white bell-like blossoms. It is unfortu-

ately one of the most difficult of all Alpines to manage under culture, but it is apparently at home here growing in a slanting crevice. Another rarity is *Crassiope fastigiata*, a plant which thrives so well at Glasnevin. There are at York broad masses of it, though it does not seem to grow so tall as at Glasnevin. It appears to require a partially shaded situation and a deep peaty soil. A similar situation suits the tree-like Club Mosses well, and they all flourish admirably here. It is to be regretted that such exquisite plants are not more known than they are, as they are totally unlike any ordinary type of plants, and can only be compared to liliputian Conifers. *Lycopodium complanatum* especially resembles miniature trees of

the elegant *Araucaria Rulei*. *L. dendroideum*, the Ground Pine, is also a fine kind and not very difficult to manage. The numerous family of Saxifrages, being essentially "true mountaineers" are, of course, largely represented. Confining my enumeration to the choicest, I noticed several well established examples of the beautiful *S. florulenta*, which is not only one of the rarest but also one of the most difficult to manage—one that has for several years been a puzzle for some of the most skilful cultivators. It is grown in well-drained fissures firmly wedged between the rocks. Of the crustaceous section there are myriads of forms and varieties; in fact, too many to particularise. The rarest which I saw were the pigmy *S. diapienoides*, forming dense, hard, cushion-like masses; the Lichen-like *S.*

squarrosa, fine tufts of *S. valdensis*, *aretioides*, *Frederici-Augusti*, *cæsia*, &c., and grand masses of that most beautiful of all the spring flowering kinds, *S. Burseriana*.

The experiment of inuring reputedly half-hardy plants to the full vigour of a Yorkshire climate is practised largely and with a fair amount of success. Judging from the appearance of plants of *Philæsia buxifolia*, a pretty Chilian shrub, which I saw here, it is much harder than we have hitherto considered it to be, and the same may be said of the North American pitcher plants, *Darlingtonia californica*, *Sarracenia flava* and *rubra*, and even *S. psittacina* and *Dionæa muscipula*; the leaves of the latter fully exposed acquire a bright red colour, which is quite unattainable under the ordinary mode of treatment. The elegant little *Callixene polyphylla* will not succeed in open situations, though its near neighbour, *Luzuriaga radicans*, thrives admirably here as it also does in the open air at Kew. These are but a few of the rarities to be found here, and only a few indeed of the vast collection that has been accumulating here for many years from every available source. WILLIAM GOLDRING.

HARDY ORCHIDS.

THESE rank amongst the most quaint, the most interesting, and most beautiful of plants. Exotic Orchids are beyond the reach of many, but the hardy species can be grown and flowered well without artificial heat. Their treatment is somewhat different from that usually recommended for most of the exotic or Epiphytal species. I find that nearly all of them succeed in turfy fibrous loam from an old common where Heaths and Brackens flourish, adding to it an equal portion of fibrous peat. Some sorts of loam do not mix well with peat, and in that case I add silver sand, broken potsherds, and a little leaf-mould. I fill the pots half-full of drainage. It is best not to subject some species to a temperature lower than 32°; they certainly flower better and grow stronger if they are kept in a greenhouse in which New Holland plants succeed. One of the most useful for decorative purposes is *Orchis foliosa*. The flower stems of this are now pushing freely; just as they start to grow, and before many new roots are formed, they should be repotted. Turn the plants out of their pots and separate all the crowns carefully with the hands, preserving all the young roots intact. Place some Sphagnum Moss over the drainage, then a portion of the compost pressed in with the fingers and made level. On this distribute the roots evenly. I put one crown in a 5-in. pot, and from nine to twelve in an 11-in. one. Work more of the compost carefully amongst the crowns with the fingers, until the top of the growth is about $\frac{1}{2}$ in. below the surface of the soil. I then plant on the surface a few tufts of Moss, which is kept in a growing state all the season. The roots must not be allowed to become too dry, else the plants will suffer. Amongst hardy Cypripediums, *C. Calceolus*, a native of Britain, is one of the most interesting. It has been found wild in a few places in the north of England, but it is much more common in Switzerland. A gentleman writes to tell me that he found it abundantly in the Lanterbrumen Valley, where it grows in the woods; and the flowers are gathered in handfuls and placed in vases in the hotels. This variety grows most freely in pots. I had a single crown about six years ago, which I have divided this season and could count quite twenty stems; the treatment is in all respects the same as that recommended for *Orchis foliosa*. *C. pubescens*, a North American species, requires the same treatment in all respects. I find that it increases very rapidly, but not so fast as the other; a single crown has increased at the rate of one stem a year, but I have not yet been able to divide the plant. This is a very handsome species, second only to *C. spectabile*. This succeeds admirably in peat beds out-of-doors in a shady position; it will grow and flower pretty well exposed to the sun, but it does better with a little shade. I mix the peat with loam and sand for pot culture, and just keep the soil moist until the stems are 2 in. or 3 in. out of the ground, when water is applied more freely. The pretty little stemless species, *C. acaulis*, succeeds well treated in the same way; and it ought to be stated that the Moss quite covers the surface of the soil with a green carpet some time before the plants are in flower. J. DOUGLAS.

Gladioli in Rose Beds.—Single bulbs of Gladioli planted in Rose beds in spring, in the open spaces, have borne three and four large spikes of fine flowers, and have made the beds look gay at a time when they would otherwise have been dull and comparatively bare. As the leaves of Gladioli are erect and occupy but little space, I find them to be one of the best subjects for introducing amongst Roses, as their many beautiful coloured spikes of bloom are highly ornamental; they also look extremely well when mingling with the large-leaved plants employed for producing a sub-tropical effect.—J. GROOM, *Linton*.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Dracæna Ehrenbergi.—In the Emperor's winter garden at Vienna this handsome plant was in flower a short time ago. The flower stem was 2 ft. in height, and much resembles that of a *Yucca* as regards the arrangement of the flowers, and the individual blooms much remind one of *Dracæna Draco* with very long leaves. There appears to be some diversity of opinion in reference to this plant whether it is to be a *Yucca* or a *Dracæna*.—L. KROPATSCH, *Laxenburg*.

Variegated Honeysuckle for Edging.—As a permanent hardy edging plant few will suit better than the dwarf golden-leaved *Lonicera* (*L. brachypoda aurea variegata*). It may be seen in one of the Vienna public gardens, where it is clipped to the height of about 10 in., forming a long strip in one of the parterres.—LOUIS KROPATSCH.

The St. John's-wort at Penrhyn Castle.—I always like Mr. William's notices in THE GARDEN, but in that about the St. John's-wort he does not seem to notice the fact that this plant, completely established over the surface of the ground, occasionally kills strong forest trees even, as was recently pointed out in THE GARDEN, and that it therefore requires to be used with great discrimination.—V.

Clintonia pulchella.—This pretty annual has done well this year as a bedding plant. We had several edgings of it, and during the summer months they were one mass of the finest blue that could be desired, in lieu of the rather too-much-seen blue *Lobelias*.—L. KROPATSCH.

Saxifraga Fortunei.—This is now in beauty in our rock-garden, the white flowers with the solid leaves having a very good effect. It is a plant which well deserves a snug corner to bring it forward, as otherwise placed the flowers are sometimes damaged by early frost. It is perfectly hardy.—G. F. WILSON, *Heatherbank, Weybridge Heath*.

Polygonum amplexicaule.—This is a most useful hardy flowering plant in autumn, when the majority of other plants are past their best, either for enlivening borders or for cutting purposes, for which it is well adapted, as its blossoms last a considerable time in that condition. Another recommendation is that it thrives where many other plants would starve. In the impoverished soil in the herbaceous ground at Kew it forms excellent clumps, and is very attractive just now.—W. G.

Lilium auratum Planted Out.—Beautiful as this well-known golden-rayed Lily of Japan is under glass, it is seldom one finds it in good condition out-of-doors; but that it is perfectly hardy and does succeed in some cases has been amply proved. A few days since I was surprised to see a beautiful spike of this fine Lily in full bloom, growing out of a *Rhododendron* bed, and evidently quite at home, as the blooms were equal in every respect to those grown under glass. This bulb must have been some years in its position, as it was quite overgrown. People desirous of adding a distinct and striking feature to their gardens cannot do better than plant good bulbs at once of any of the *Lilium* family, which they may be able to procure, in the open spaces of *Rhododendron* beds; they will, I am sure, be rewarded with a fine display next autumn, as the roots of both luxuriate under the same conditions, and the *Rhododendrons* are well suited to shelter the early growths of the Lilies. These in open, exposed beds are sorely affected by withering winds, which are much more injurious to them than severe frosts.—J. GROOM, *Linton*.

Native Plants on the Orme's Head.—I can assure "O. B." that the Ferns and Alpine plants referred to by me are to be found on the Orme's Head. I shall have great pleasure in giving him specimens of them, together with various other specimens, such as *Asperula odorata*, *Armeria maritima*, *Chrysocoma Linosyris*, *Cotoneaster vulgaris*, *Dianthus glaucus*, *Spiræa Filipendula*, *Veronica alpina repens*, *Lysimachia Numularia*, *Statice maritima*, *Orchis apifera*, *O. arachnites*, *O. conopsea*, *O. hircina*, *O. fusca*, and *O. pyramidalis*. These are but a few of the rare plants which may be found by any careful collector during the spring and autumn.—BOTANIST. [The foregoing cutting from the Llanduduo paper last week is sent with the view of calling your attention to the statement that *Orchis hircina* is found on the Great Orme. Is this known to be a fact by our chief botanists? It is so extremely rare, and its habitats are so few that it would be pleasant to add this one to them. If I can find out who "Botanist" is I will try and ascertain whether he is right. In the meantime can any of your correspondents verify the statement? It is too late in the year to search. I cannot find the plant named in the only list I have of the botanical treasures of the Great Orme.—A. R., *North Wales*.

THE FRUIT GARDEN.

SEASONABLE NOTES REGARDING FRUIT.

LOOKING at the immature condition of the wood of all fruit trees, more sunshine is sadly needed, as nothing tends to consolidate and harden the shoots like the solar rays; for, do what one will by way of thinning and stopping, it is impossible, without such help, to ensure ripeness, or get the buds developed before the frost takes off the leaves, which are now so full of sap as to be very susceptible to its influence. Much, however, may be done in the case of Peaches and Nectarines by going over them at once and pruning out all the growth not required, as, by so treating them, light and air will be freely admitted, and the strength of the tree concentrated in the shoots left, instead of being wasted on wood that has to be cut away in the spring. If this autumn thinning were more practised it would result in a great gain, especially with the above-mentioned trees, which, from having to be trained to the face of walls, forces the foliage to over-lap and shade the branches in such a way that the sun never reaches a large portion till they become bare in the winter. To hurry the leaves off, as some do, with a view of letting in light, is a great mistake, as the buds require their assistance till they are cast off from them naturally, and, rather than remove one from a shoot that has to be laid in, it is much better to go thoroughly over the trees and take out what wood can be spared, and leave the other intact. Not only does this thinning hold good with those on walls, but it is even of greater importance with those in houses, and it is a good plan with these to go at once over them directly the fruit is gathered, and prune from them every shoot that will not be wanted for bearing or furnishing the trellis. To get the wood of indoor trees thoroughly ripe and brown, the atmosphere should now be kept dry and plenty of air on the ventilators at all times, which will help materially in dispelling the watery juices which the wood and leaves contain, and harden the tissues.

Vines from which Grapes are cut will require similar treatment, and if a little fire-heat is given by day, in the absence of the sun, they will be all the better for its assistance, as it should be borne in mind a satisfactory crop depends almost entirely on the condition of the present year's wood, for if that is soft and pithy the bunches next summer will be few and far between, and the chances are that instead of the berries finishing off properly numbers of them will shank. To aid those now ripening, fire-heat must be applied by night for another month at least, as, although they may be coloured fairly well, the juices are not yet converted into saccharine matter, and, without this change, Grapes are inferior in quality, and will not hang long on the Vines. In applying artificial heat, air must not be forgotten at the same time, but just a "crack" kept on back and front so as to let out any damp that may arise and keep the atmosphere in motion. If this is not done the moisture that naturally arises condenses on the berries, and not only spoils their bloom but causes mould and rot, and to prevent the spread of this the bunches should be looked over occasionally, and any berries showing symptoms of decay clipped out.

The lateness of the season will throw fruit gathering far into the autumn, as there are very few even of the earlier sorts of Pears and Apples yet ready, and it will require much watchfulness, and an acquaintance with the different varieties to know when to pick. In nine cases out of ten these fruits are plucked too soon, and the result is they shrivel and never attain to that degree of excellence they otherwise would. As a rule, the longer each kind hangs on the tree the better it is, and in no case should they be hurried off, unless frost of sufficient severity to injure them is apprehended; and then, of course, of two evils there is nothing for it but to choose the least, and at once get them from the trees. When ripe enough for gathering, all sorts begin to drop, which is a sure sign they are ready, that is, if they are fair samples of the crop that falls, as specked or maggot-eaten fruit are often tumbling, and are therefore no guide as to the maturity of the others. A good index of this in Pears is when, if turned gently upwards, they will leave their hold at the joint at the end of the footstalk, and if they do not separate freely they are not mature. All late-keeping sorts are always the last ready for picking, and should be left out as long as they will fairly hang on the trees.

In storing fruit of Apples and Pears it is a great mistake to lay them on straw, sawdust, or anything of that kind, as is frequently done, for however sweet those materials may be at the time of using, they are sure to become fusty afterwards from damp and the closeness of the room, and in the end impart an unpleasant flavour. Clean bare shelves made with boards are all that is needed, and on these the fruit should be laid singly, handling it when doing so, and also at the time of gathering it, carefully, for a bruise, however slight, is sure to lead to decay.

In places where the soil is stiff and wet, and the trees grow gross and strong, it is absolutely necessary every other year or so to adopt corrective measures to restrain them; for however well they may be attended to during the summer by way of stopping and pinching in the shoots, they will run riot, and especially in seasons like the present, with the air always saturated with moisture. Root pruning is the remedy for this excess of vigour, but the end of the month will be quite time enough to commence operations, as to interfere with trees now that are clothed with fresh green leaves would cause the wood to shrivel and the bark to contract, a condition of things to be avoided, as tending to throw the plants out of health. If the trees to be treated happen to be of large size, the safest and best way is to only do one side now and leave the other for next year, as to sever all the large roots around would cause too great a check, and defeat the object in view. Root pruning as generally conducted is a very barbarous proceeding, as the greater portion of workmen cut and dash with their spades at everything that comes in their way, regardless of the effect such a proceeding may have on the plant. Battered roots are like battered limbs; they take a long time to heal, and therefore too much care cannot be exercised in dealing with them, as the amputation they undergo should be of a surgical kind; the cut should be made with a sharp instrument, be it chisel or knife, for when the root is so severed it soon calluses over and emits a host of young feeders. It is the formation of these and the work they carry out that renders a tree fruitful, as they produce the flower buds, and the large or gourmand roots the wood or strong shoots, that are too gross to be fertile. All the smaller ones that have plenty of fibres on them should therefore be preserved with care, and this can only be done by opening out a wide trench and working the soil away from amongst them with a fork so as to lay all bare, when the operator can see what he is about and carry out his designs properly. If the big roots strike down, as is invariably the case, they should be lifted and laid straight out, or nearly so, and have some fresh turfy loam scattered over them with a little sharp sand as well, which will keep them clean and healthy and encourage fresh feeders. Small trees may be dug entirely round with perfect safety, but not closer than 2 ft. or so, and any of large size not nearer than a yard, as otherwise there is a risk of crippling them, especially if they have never been root-pruned before. When the work is done it is advisable to give a good mulching of half-rotten manure, which keeps the soil at a uniform degree of heat and moisture, a state that is highly favourable to the well-being of the tree.

In the other department of the hardy fruit garden the chief thing just now to be attended to is Raspberries, the old canes of which should all be cut away close down to the ground so as to admit full light and air to the young ones. These again, if left thick, may be reduced to from three to five, according to their strength and the distance at which the stools are apart, but there is nothing gained in leaving them thick as they only choke each other up in the spring and send forth a lot of weak branches that produce small inferior fruit.

S. D.

ROOT PRUNING.

I was pleased to see (p. 329) that "J. S. W." gets crops in exact proportion to the amount of "root pruning" which he does periodically; we have, therefore, only to keep the spade annually at work under the trees to render us independent of foreign fruit. I think I stated plainly (p. 316) that uprooting, except as a final end to the tree, was not practised hereabouts, and it was not likely that I should personally put into practice a system which I condemn in theory. I am sure that many will endorse the opinion of Mr. Coleman, who, in writing about Peach culture at Floors (p. 329), describes root pruning as a "necessary evil" that might, in most cases, be remedied by giving the branches free room to extend, and by circumscribing the root space so that they could not again descend into the cold substratum, or extend further than was found necessary; as I think the strongest advocates of root pruning will allow that its benefits are only temporary, and that pretty constant repetition is wanted to keep the trees fruitful. "J. S. W." seems to think the climate of Kent all that can be desired, but I am sure that what is applicable to this part of the country is equally, and even with greater force, applicable to the majority of English counties, as the light, warm soils of the eastern and western districts are far better suited to the early production and maturation of the bearing wood of fruit trees than much of the hard, stiff land devoted to fruit culture in Kent. If I made any exception as regards fruits that do sometimes need exceptional means to render them fruitful, it would be Pears; but even these, when allowed room for extension, as when grown on high buildings or exceptionally high garden walls, are just as prolific in proportion to the space allowed as "J. S. W.'s" restricted trees are when frequently operated on at the root. What I object to is the indiscriminate advocacy of root pruning in the case of trees with a mop-like growth of roots, as I am sure that if they are in a

condition to be moved without any check, they do not require to be moved at all; for although a tree may bear a light crop the year after the removal, it is only from established trees we can ever hope to get fruit as abundant as it ought to be. If root pruning helped them to brave our extraordinary seasons there would be some good in it, but of late years they need all the roots they can make, and superabundant vigour, thanks to dwarfing-stocks and double-grafting, is not much to be dreaded. "J. S. W." says his idea of fruit culture in Kent is that it is rather loose; but allow me to remark that is the very point where they gain so great an advantage over those whose rigid adherence to fixed rules of pruning prohibits their ever getting much fruit for their pains. Nowhere in the kingdom are fruit trees and fruit bushes pruned closer than here (if they need it), as, for instance, Nuts and Currants, while other fruits are allowed such latitude as is found to produce most fruitful trees; the object is fine fruit, not methodically-trained trees, and, except in very adverse seasons, a rich harvest is the result.

J. GROOM.

Linton.

"J. S. W." (p. 329) admits that "root pruning is useful in some cases," but I think he ought to have specified the "cases" in which it is useful; we should have then been better able to draw our own conclusions. I know that many parts of Kent have a deep rich soil, and what is most important, too, thorough natural drainage. I am a market gardener, who some years ago grew fruit for the markets—fruit which, for appearance and quality, was said to be superior to any in the kingdom. Mulching and top-dressing of course I agree with, but may I add that mulching a Peach tree against a wall is a very different thing from mulching an Apple or Pear tree in an open quarter. Possibly the border in which the Peach tree was planted was cropped with vegetables, and that working the surface soil over some 10 in. or 12 in. deep destroyed all the surface roots, and that consequently after the mulching the roots were encouraged to the surface; for I have found that roots will seek nourishment if it is within their reach, just as branches will seek light and air if it is possible for them to push into it, or rather out to it. Now the thought has struck me that in the case of a border exposed to the sun as a Peach border would be, and partly decayed manure used, would not this partly decayed manure hold very much of the water in suspense to evaporate into the air that ought to have gone to the roots? But I have said that mulching differed as regards its effects in an orchard or open quarter; let me therefore explain. Suppose the trees to be bushes, pyramids, or standards; the heads of these intercept the sunshine that would otherwise reach the ground; and although the same description of manure was used both on borders and in open situations, it would, of course, only hold the same proportion of moisture, which would not be evaporated on the borders as on open exposures, but be carried into the soil beneath by the rain. Now with market gardeners the object is to get quality as well as quantity; indeed, quality is to be preferred, for when fruit of inferior quality would not sell at any price, that of superior quality would at a remunerative price, and so much is this the case that a tree under ordinary treatment (that is, one the roots of which have had no attention), would produce say 6s. or 8s. worth of fruit; whereas one whose roots were examined and well cared for by supplying them with nourishment at a distance easy to reach, would produce from 20s. to 30s. worth of fruit. If Mr. Groom had thought it worth his while to take up a tree and examine its roots, he would have found a wonderful correspondence between roots and branches. I remember many years ago being particularly struck with this. It was a Pear tree which produced long, weak, wiry branches, on which there was a great distance between the buds; and upon examining the roots I found them to be very similar—long, thin, lean, and fiberless; and I think any one on examining a tree or an undergrowth of large trees will find similar results. In the first case it is poverty of soil, and in the latter the want of light and air; but there is most assuredly a similarity between root and branch. May I say this has taught me a lesson not to be forgotten.

L.

October Peaches.—In most localities all the Peaches may be so characterised this season; few or none have ripened till October, not a few Peaches and Nectarines can hardly be ripe till November, if at all; while as for the true October Peaches, such as the Late Admirable, &c., they will not ripen at all. It is something quite unique in our experience to have been gathering Noblesse, Royal George, Violette Hâtive, Barrington, and even Rivers's Early York Peaches in October. We gathered very fine fruit of these and other sorts to-day (October 10th), and Nectarines are even later than Peaches. Growing side by side, this is singular. Violette Hâtive, Pine-apple, Hardwicke, and Pitmaston Orange are partly gathered, but the Elruge is still hard, as well as several other varieties. The rains seem to have suited Peach and Nectarine trees far better than

Apricots; though severely blighted in the spring, they have quite recovered, and are full of young and vigorous wood. But will it ripen? It seems extremely doubtful; and if not, and a severe winter sets in, such as is almost sure to follow on the heels of such a short summer, next year's crop is likely to be worse than this. Every possible means should be used to ripen the wood; chief among them is the removal of all superfluous shoots and leaves, and the exposure of those left to the full influence of light and air. In cases of gross growth the roots might also be pruned at once. If possible, too, some means, such as boards, tiles, or tarpauling, should be employed to shoot all the water off the borders. By thus cutting off the supply of water at the roots, the wood would be to some extent relieved of much of its gross sap, and as it were starved into maturity.—D. T. FISH.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Raspberry Culture.—I noticed at page 517 a note from "Cambrian" on the desirability of clearing away old Raspberry canes and getting the young ones for next season's bearing tied into place. This I have practised for many years with the very best results, so that I can bear testimony to the soundness of the practice.—KITCHENER.

Warner's King Apple.—This is becoming a favourite with market growers, and certainly it is a very useful fruit. Solid, firm-fleshed Apples fetch a higher price in the market than light, hollow-centred sorts, most Apples being now sold by weight. Such sorts as Lord Suffield and Cellini, planted largely a few years back, are already being discarded. Amongst early kinds the old Keswick is about the most prolific and largely grown, as when gathered as early as possible it is a sort that amply repays good cultivation. But Warner's King is one of the Apples of the future for main crops.—J. GROOM, Linton.

Castle Kennedy Fig.—This variety grows exceedingly well on a south wall here, and is never protected in winter. I have gathered the finest fruit from it this season that I have yet seen, six of which weighed 2½ lb.; and some of the fruits measured were between 9 in. and 10 in. in circumference and 5 in. in length.—RICHARD NISBET, Aswarby Park Gardens.

Peach Training on the Extension System.—The encouraging example of the extension system of training the Peach at Floors Castle (p. 329) should abate the prejudices still entertained by not a few against the system. We should like to hear of a single instance of a house, 45 ft. long, being filled in nine years or even twice that time by one tree trained on the restrictive system. The extension system has been persistently advocated in THE GARDEN almost exclusively since its commencement, and we now hear of a good many adopting it. Some five years ago or more I stated that a single Peach tree under glass would cover 600 sq. ft. of surface or more in ten years, and this it would appear has nearly been accomplished at Floors. Of course most cultivators are prevented from giving so much space to their trees from want of room, and because more than one variety is usually wanted in a division. It is exactly nine years this autumn since I wrote to your contemporary, *The Gardener*, recommending the extension system more generally, and giving the results in the shape of growth and fruit obtained here from trees planted a few years previously, and the subject was taken up by another writer at the time, who predicted the most disastrous results to the plan "after a few years"; but these prophecies have not been fulfilled in any single instance with which I am acquainted. The theory of the objectors is that the trees run out and get bare at the bottom at an early age, an altogether erroneous idea as any one may prove for himself.—J. S. W.

Orchard Houses.—Mr. Rivers has sent us fruits of the Tardive d'Orleans Apricot ripened under glass—just a month later this year than in ordinary seasons. Though good, they were not so juicy or well flavoured as usual, owing to the want of sunlight and heat. Along with the fruit in question came the following letter from a gardener in South Wales: "Wall fruit, this cold wet summer, has proved to be a complete failure here. I think it my duty, therefore, to strongly recommend orchard houses and pot trees. We have now had nearly three years of failure out-of-doors with the wall fruits, and they have not paid for the labour bestowed on them. Owing to our situation being low, we get dreadful fogs and white frosts. My idea is that walls would pay better furnished with Plums and Pears. I have two orchard houses filled with trees in pots, and trees on the back wall in my lean-to house, which is slightly heated; but my span-roofed one is a cool house. In both of these houses I always get a good crop. The trees have only 3 ft. of ground each on which to stand, and yet the Peach and Nectarine

trees this year in both houses average five dozen fruit each, large and small. On Plums and Cherries there are a great many more. Half-a-hundred trees can be grown in a medium-sized house. As the fruit from one tree is gathered, I place it out-of-doors and give the others a little more room. I have a Plum tree in a 15-in. pot which ripened 154 fine fruit. I have Pitmaston Duchess Pears weighing $1\frac{1}{2}$ lb. each. Three Cherry trees carried 76 dozen. Pot trees in orchard houses are very profitable, and when in bloom they are a grand sight. The Peach called Prince of Wales has borne 89 very fine fruit, and is now in a 15-in. pot. The tree is twelve years old. Souvenir du Congres, though a small tree, is bearing twenty Pears; it is in a 12-in. pot; Durondeau, in a 13-in. pot, twenty-four Pears. Coe's Golden Drop Plum, in a 13-in. pot, has borne seven dozen very large fruit. These are not the only ones I have like this; I have more than half-a-hundred quite as good."

THE KITCHEN GARDEN.

NOTES RESPECTING VEGETABLES.

In the kitchen garden late Cauliflowers will now be turning in, to protect which from frost it is a good plan to bend a few of the outer leaves over the heart, as they are exceedingly tender and soon suffer injury from frost. All Potatoes are now best out of the ground, but should not be pitted if they can possibly be kept in a dry airy shed or cellar, as the flavour when stored in the first-named way is always earthy and disagreeable, and if allowed to remain long the tubers begin to sprout, which further deteriorates their quality. Those required for seed keep best in the light, where they should be laid thin and have all the air that can be given, as the point with them is to retard their sprouting to as late a period as possible. In the culture of Celery the general course is to earth up as growth proceeds; but I am convinced, from repeated trials I have made, that it is bad practice, as, should it require water late in the autumn, as it always does, except in a dripping season like the present, it cannot be given in sufficient quantity to reach the roots without washing the soil into the heart. Rather than earth up so early, it is far better to tie each stick around with a piece of matting just to keep the leaves close till the time comes for blanching, when the earth can quickly be packed to the sides of the row.

Among common vegetables one of the greatest delicacies in spring are young Cabbages, and to have these tender, succulent, and good, the ground in which they are to be planted must be heavily manured and dug to a good depth that they may have a good root-run. To get them to turn in early, it is high time they were put out, as after October they move slowly, and do not get hold of the soil so readily. For a spring Lettuce there are none to equal the Bath Brown Cos, a first planting of which should at once be made close up to the foot of a south wall, where, let the winter be what it will, they are sure to pull through, and afford fine, full, crisp hearts long before any can be obtained from the borders farther out in the open. A planting made at the same time in a warm, sheltered spot will yield a succession and keep up a supply till the spring sown comes in. As to young Cauliflowers, I like to have the first batch potted in rich, light soil, and wintered close up to the glass in cold frames, where they can have plenty of air night and day to keep them sturdy and strong, as, treated in this way they may be transferred to the open quarters by-and-by without check, which generally causes so many others managed in the ordinary way to turn in prematurely. S. D.

Land Watercresses.—Growing Watercresses on land is by no means a difficult matter, and with ordinary care a good supply can be had for a considerable portion of the year. Mr. W. Bunn, gardener to E. M. Nelson, Esq., Hanger Hill House, Ealing, utilises every year a cool, moist north border under a wall as a Watercress bed, and gets a good and lasting supply of this wholesome salad. When forming a new bed a piece of ground under the north wall is well manured and dug and got into good working order, and in early spring the seed is sown either in drills or broadcast and covered with some fine soil. As soon as warm weather sets in the seed quickly germinates, and if the bed be kept moist during warm and drying weather, a crop of Watercresses can be had early in July, unless the season be a late one. The Watercress, being such a moisture-loving plant, it is absolutely necessary to keep the bed watered every morning in dry weather. When autumn comes on, Mr. Bunn places hand-lights over the plants and secures a crop of Cress all through the winter. He states that he has had a bed which lasted ten years, owing to the plants seeding themselves every year. As a matter of course, some top-dressing in spring will be found to be of great advantage. Many a piece of ground on the

north side of a wall or building could be utilised in this manner. The Cresses grown in this way are as sweet and crisp as those grown in an ordinary water bed.—R. D.

The Champion Potato.—Those who planted the Champion Potato this year will, I feel sure, not be sorry for so doing. Out of all our varieties of Potatoes—namely, Old Ashleaf, Fortyfold, Dons, Regents, Victorias, Rocks, and Champions—the only one not diseased is the Champion. I planted double the quantity this year, and without manure. I lifted six shaws recently, and I find they are a first-rate crop, eight and twelve Potatoes being attached to a shaw, which would be from 40 tons to 50 tons to the acre—anything but a poor cropper, I consider. I do not know anything of Magnum Bonum, but this I do know, that the Champion is a first-rate late Potato, of good and, I may say, excellent quality, and disease-resisting. I spoke favourably of it last year, and I do so again, in the hope that most people who want winter and spring Potatoes will give it a trial, and I am sure they will not be disappointed. We were eating Champions in July this year, eight months after they were lifted, and they were certainly better than young Potatoes that we were getting then from the outside. I think its immunity from disease is due to its lateness and to its strong woody stem. I do not see the least symptom of disease in any of the three quarters where they are planted, while, as I have said, all the others were, and are, badly diseased.—HENRY KNIGHT, *Floors*.

Ne Plus Ultra Pea.—Mr. Groom has given (p. 328) a word of praise respecting this Pea for autumn use. I, too, must give it a good word, for it is most useful to me now; but I must add that I have two long rows of Peas in full bearing, one is Culverwell's Prolific Marrow, the other Ne Plus Ultra. The former is a much larger Pea than the latter, fine in flavour, and is regularly giving us two dishes for one of Ne Plus Ultra.—READER.

The Chatsworth Tomato.—I saw a Tomato at Clumber the other day bearing this name. It is of large size, and very handsome. Mr. Speed, who raised it, states that it is a seedling from Criterion, and that, while it is a strong grower, it is very early and remarkably free. In form the fruits resemble those of Hathaway's Excelsior, and they are of a deep bright red colour.—H.

French Asparagus.—Without question M. Godefroy-Lebeuf is correct in saying that all soils can be made to produce good Asparagus. All depends on treatment, except early cutting; that may and does vary from two to three weeks, even in places not many miles distant. With me, in the south-west of Dorset, a dish can generally be cut about April 1, and we aim at discontinuing cutting after the first week in June, just as the early Peas come in. I have two vegetable gardens consisting of entirely different soils; one friable, and hardly more than 10 in. before the spade reaches the white gravel, can be worked nearly at all times; the other, not 100 yards distant, has for soil strong clay; it is equally or in some seasons more productive than that on the light soil, but it requires good management and dry summers. Both these gardens produce good Asparagus, averaging from 2 in. to 3 in. or more in circumference at 3 in. from the tip, and amply supply us; what more can we desire? As to preparing the beds for winter, I cannot agree with forking up, unless under peculiar circumstances. I only cut off the ripe stalks and give a good dressing of rotten manure (from the late Vegetable Marrow bed), and dress also with plenty of common salt. Nothing, even in England, pays a market gardener better for growing than Asparagus, provided he resides near a large town.—EUGENE E. P. LEGGE, *Court House, Linton Cheney, Dorchester*.

Magnum Bonum Potato Diseased.—Since writing on this subject about a fortnight ago, the disease has made rapid progress in the haulm of this variety, and where it is worst there is no difficulty in finding diseased tubers—as many as three and four at a root, and some of them quite gone throughout. Where the stems are greenest they are, however, still free. The same thing has happened on other parts of the estate. Lately the weather has been fine and mild, but foggy. I see that "A. D." thinks I am wrong in attributing the freedom of Magnum Bonum from disease to its lateness, and says that Paterson's Victoria is as late and gets badly diseased. I have not grown the latter this year, but it is one of the freest from disease in this locality, and I think it has generally borne out that character. Of course, I admit there are differences in kinds, but I do not believe that Magnum Bonum will be found to bear out its character as a disease-resister when subjected to the same conditions as the others, and the results here seem likely to prove as much. I hope I shall be able to state a few weeks hence that it is still as free from disease as it is at present, but I have doubts. One statement of "A. D." surprises me very much. It appears he has got his crop of Magnum Bonum sometime since, and the foliage, we are told, "died long before the tubers were ripe"—rather a curious physiological circumstance. I never before heard of a Potato the haulm of which died long before the tubers were ripe unless it

was killed by disease of some kind, nor did I believe perfect maturation of the tubers could be accomplished without leaves. It is universally acknowledged that a ripe haulm indicates a ripe tuber, but *Magnus Bonum* must be an exception if "A. D." is correct in his observations. All over this district *Magnus Bonum* is the latest Potato in the fields and gardens, and "A. D." is very fortunate indeed that he can ripen it by about the end of August, as his statements seem to imply.—J. S. W.

Asparagus Culture in America.—Mr. A. Van Sicklen, of Jamaica, Long Island, is one of the best growers of *Asparagus* for our New York market. He plants very wide, 6 ft. by 4 ft., for field culture; the first year after planting the *Asparagus* he plants a crop of Cabbage between the 6-ft. lines. The object of the wide planting is to allow the yearly use of manure to the roots, which he applies early in spring by ploughing as close as practicable to the roots on each side, then applying 2 in. or 3 in. of well-rotted manure on or close to the root, then again levelling in the furrows by plough or cultivator; in this way the crop produced is enormous, and the bed so worked would be quite as good at the end of twenty years as at four. This, though a little more labour than manuring on the surface, gives the full benefit of the manure to the roots.—PETER HENDERSON, in *Gardener's Monthly*.

ROOTS AND "YARBS" IN NORTH CAROLINA.

THE following extracts from a letter from Prof. Asa Gray to the *American Agriculturist* will give some idea of a little known region, and a peculiar local industry, viz., that of the Root and Herb business as carried on in the mountain districts of Carolina. Our botanical journey took us to the head-quarters of the business, and through the regions where most of the collecting is done. Being ourselves members of the herb-confraternity, we were received with enthusiasm, and shown all the operations. "Sang," i.e., Ginseng, the original foundation of the trade, has been collected ever since the earliest settlement of the country, and is by this time pretty well rooted out from the more accessible districts; but it is still brought in, and brings 75 or 80 cents a pound. When I was first in these mountains, between 35 and 40 years ago, this, and Angelico-root were the only things which were gathered for market. Now the price-list which you will find posted at almost every road-side store, enumerates over 200 articles. Some of them are cultivated plants, such as summer Savory, Southernwood, Peony-flowers, Water-melon-seed, and leaves of the Poppy and garden Lettuce. But most are of wild herbs, or the bark or berries of trees, or in some cases blossoms. Elder flowers for instance, are a prime article. The collecting is done by women and children—it could be done only by cheap labour—and the articles, when dried, are taken to the country store, usually to the nearest county seat, and exchanged for "store goods," very little money passing. Almost every day we would meet women on horseback, with a bundle of the more bulky herbs on the off side, commonly wrapped in a sheet or blanket, and another on the pommel, and a basket in one hand. With the proceeds they buy most of the clothing that is not made at home (for happily the wheel and the loom hold their place in almost every house), perhaps some sugar, and their small finery. But "tree-sugar" is made for home consumption, and serves for the Coffee (Tea is unknown, at one place, where our Tea was pronounced "not bad to take," we were requested to tell them what they should call for if they ever got any at the store); and the best of honey abounds. In these mountains milk and honey literally flow without price. At least we could never get the people to fix any.

From the country stores the roots and herbs pass to the larger dealers, and from these only would you get any idea of the magnitude of the business. You should see the herb-warehouse of Mr. Cowles at Gap Creek, in Ashe County, and the much larger one at Statesville, of the enterprising Wallace Brothers, under the charge of Professor Hyams, three of whose sons are in the business at different points, and one of them in McDowell County, where he was the fortunate discoverer of the long-lost *Shortia*. Bales upon bales of roots and herbs, compacted by a powerful screw press, accumulate in these warehouses, and pass on to the northern cities and ports. What becomes of them? Some are standard articles of the *Materia Medica*, such as Mandrake-root, from which *Podophyllin* is made. One day, while we were present, an order came to one of these establishments for ten tons of Mandrake to go to France. The larger number of articles go into patent medicines. You may form some idea of the demand for this purpose from two orders just received, one for an unlimited amount of Liver-leaf (*Hepatica*) and the other for two tons of Maiden-hair (*Adiantum*). Consider what a quantity of these in a dried state would go to a ton?

And now, if I begin to tell you anything about Azaleas, Laurels, Rhododendrons and Kalmias, there will be no end. We were

just in the season for these in all their glory, having timed it accordingly. You may say there is no need to go to the mountains of North Carolina for these, but you will get new ideas if you do. Nowhere else can you see wooded hill-sides of the richest green break out into flame with *Azalea calendulacea*, and nowhere but in Rhodan can you see some miles of grassy mountain-top all ruddy and rosy with *Rhododendron catawbiense*. Now you can comfortably reach the top of Rhodan mountain in 36 hours from New York, and be in mountain air all the way after leaving Lynchburg, and on the mountain be most comfortably and cheaply housed and fed, at the Cleveland Hotel, at an elevation of a few hundred feet higher than the top of Mount Washington, and enjoy an air which is cool without bleakness, and views such as we have never elsewhere seen the like.

PLATE CCII.

ALLIUM PEDEMONTANUM.

Drawn by CONSTANCE PIERREPONT.

THIS is certainly the most beautiful Alpine plant which it has been my good fortune to see in a wild state. The day on which it was found I well remember leaving a small hotel in Piedmont, about six o'clock in the morning, accompanied by an Italian. Hour after hour, and mile after mile, we traversed in search of Alpine treasures, but up to four o'clock in the afternoon with but little success; when, returning home by another route, we suddenly came upon a steep shelving bank of *débris*, which was dotted over with tufts of this very gay plant then in full flower. Its large drooping heads of reddish-purple blossoms, waving in the wind under a glorious setting sun, was a sight long to be remembered. The plant is tufted or crowded at the base, with stout fleshy root-stems, which are, in fact, the elongations of the bulbs. These are coated with densely matted fibre, with from four to six narrow grass-like leaves. From the centre of the foliage springs a straw-like acutely-angled scape, 4 in. to 9 in. high, bearing at its summit a compact head, composed of from four to nine drooping bell-shaped flowers, about $\frac{1}{2}$ in. long. It thrives well in any well-drained garden soil, and will prove to be an invaluable plant either for the mixed herbaceous border or for pot culture. Its beauty is, however, greatly enhanced by its being placed in such a position on rockwork that the flowers are level with, or a trifle above the eye, in order to be seen from below instead of looking down upon them. There are two other species closely allied to the above; *A. narcissiflorum* is exactly like *A. pedemontanum*, but is devoid of the fibrous coating round the root. The other one is *A. insubricum* (Boiss); it has larger flowers and broader leaves; the flowers, however, are much duller in colour. It has been passing under the erroneous name of *A. grandiflorum*.

R. POTTER.

[The specimen from which our plate was prepared was supplied by Messrs. Backhouse of York.]

***Tigridia grandiflora*.**—What a glorious autumn hardy flowering bulb this is, and, singularly enough, although old-fashioned, it is comparatively but little grown. A fine boxful of it was sent by Mr. Cannell, of Swanley, the other day to our local show, where the gorgeous colouring which the blooms possessed caused exclamations of wonder as to what they could be; they certainly looked more like the blossoms of some brilliant Orchid or inhabitant of our stoves than the produce of an open air plant that had braved the storms and floods of 1879.—J. GROOM, *Linton*.

Silver-edged Grasses.—Some inquiries of late having been made about silver-edged Grasses, I may observe that I never met with any that looked so well as *Dactylis glomerata variegata*, by some called *D. elegans*, I believe; and Mr. Williams may be a little amused when I tell him that I first met with it in a garden a very short distance from Ormskirk, about the year 1857, and brought it to the south of England some years before it was commonly cultivated there. I subsequently obtained *Festuca glauca*, and also one called *Stipa pennata*, both so near alike that I could not discover any difference between them; consequently I discarded one. Both had a sort of grey foliage rather than silvery-white, like the *Dactylis* mentioned above; but I confess to losing the latter more than once, the dry summer of 1861 and afterwards being fatal to it. It does not appear to have become much grown, except in specially rainy districts. I have never, however, seen any silvery form of Grass to equal it in beauty when well grown. But I do not despise the old Ribbon Grass, or the Gardeners' Garter, which is still well worth attention; it is not particular what kind of a site is allotted to it, and a few plants in pots in early spring are well worth growing.—AN OLD GARDENER.



ALLIUM FELEM UTANUM WILLD

GARDENING FOR THE WEEK.

Flower Garden.

At present by far the most interesting portion of the flower garden is the mixed, or what is generally termed the herbaceous borders; for, though many kinds of flowers are over and beginning to look weedy, others, such as Michaelmas Daisies, herbaceous Phloxes, Anemone japonica, and Stocks, are likely to keep up a succession till severe frost destroys them; meanwhile the bestowal of a little extra attention in the removal of weeds, decayed flowers, and fallen leaves, will add to the fuller enjoyment of such flowers. As soon as the leaves are off the trees, and there is no further likelihood of litter on that account, the borders may be lightly forked over, and any plants the stock of which it is desired to increase may then be divided. Most kinds will bear division with impunity; at the same time it is well to remember that, as a rule, established plants flower most profusely; therefore, except for the purpose of increasing the stock, or preventing encroachments, such division is undesirable except at rare intervals. The wet season seems to have suited this class of plants, so that many have much exceeded their ordinary growth, hence this will be a good season for division. Plants on rockwork have also done uncommonly well, and any re-arrangement or propagation by division may also now be carried out in their case. Sub-tropical plants that are intended to be preserved ought now to be housed. At this place, having no accommodation for wintering large plants of this character, we depend for our supply almost solely on seedlings raised in January and February, and therefore the plants are left in the beds till the frost has done its worst. Up to last winter Cannas wintered safely in the beds in which they grew with the protection of Bracken, but all were then killed; they will therefore this season be lifted and wintered in a shed, from which frost can be excluded. Abutilons are worthy of being housed early, as if placed in an intermediate house they soon re-establish themselves, and are invaluable for the production of flowers at a season when they are scarcest. Dracænas and Palms are also valuable for indoor winter decoration, and these too should be taken up early. Though we have not yet experienced any sharp frost, it will not be safe to risk out any longer tender bedding plants which are intended to be preserved. All the fine-foliaged Pelargoniums are most susceptible of injury, and if at all frost bitten wintering them safely is a difficult matter. All other bedding plants which have been propagated for stock ought now to be housed, but they should have as much ventilation as it is possible to give them whenever the weather is favourable. Damp is their greatest enemy, and as the careless use of the water-pot tends to engender such damp, quite as much as atmospheric conditions, this should be avoided. There is now such a wealth of plants suitable for filling beds in winter, that empty or bare beds ought not to be thought of; a list of some plants most suitable for this purpose was given in a former note. Our hope is that very shortly summer bedding will be so largely composed of hardy plants that but little supplementary planting will be required for the winter season. If this were the case the strongest objection that is with good reason advanced by the opponents of summer bedding, viz., its transitory character, would be done away with. A few more seasons like the one through which we have just passed, and our wits would be so exercised as regards the outlook for hardy summer bedding plants that all we required would soon be obtained.—W. W.

Auriculas.—Hardy Alpine Auriculas make very beautiful spring flowering plants in the open borders. They may now be planted in an open position, but they had better not be where the sun shines too much upon them. It would not do much harm at present, nor in early spring, but as the plants are intended to remain all through the summer months, it is at that season when the sun's rays have an injurious effect upon them. The soil should be good and well-trenched, placing some well rotted manure from 6 in. to 1 ft. below the surface. In planting it is very desirable to place some good fresh maiden loam round the roots if it can be obtained; if not, the plants will succeed without it. Many complain that such plants as Auriculas disappear from the flower borders during summer; the heat and drought are blamed for this disappearance. No doubt Auriculas do not like to be exposed to a flood of sunshine during summer, but they will live and thrive through this rather than be suffocated by Verbenas or zonal Pelargoniums, which cause not only the death of these beautiful flowers but of many others besides of similar character. Weakly-growing herbaceous plants used to thrive well in borders, and they do so now when they are protected from the devouring influences of bedding plants mixed amongst them in summer.

Carnations and Picotees.—Continue to pot off rooted layers of these as soon as they are ready, and if but few roots have been made the pots should be kept in a rather close frame, and be shaded from the sun until they are established. They do not seem

to have rooted very freely this season. Yellow-ground Picotees or yellow-self Cloves or Carnations are not so much grown as they should be. Chromatella is the name of a very beautiful pale yellow variety exhibited by Mr. Ware this year, and from the same collection was introduced a very pretty variety named Sulphur King, a bright yellow-coloured kind; then came King of the Yellows (Abercrombie), a very beautiful yellow self. All these should be grown in the most select collections. The edged flowers, or what may be termed yellow-ground Picotees, are worthily represented by the variety named Prince of Orange (Perkins); now we have a numerous progeny from this fine variety. They are all hardy plants, and are also well adapted to be grown in pots and gently forced in spring. Those intending to purchase Carnations and Picotees should now do so; they move best at this season just as they are taken from the parent plants.

Hollyhocks.—Late flowering plants of these have had a good time of it. The weather has been for the last week or two quite delightful after such a trying summer. The barometer is higher and steadier than it has been for many weeks. Seedling plants should now be put out without delay, so that they may become established before the winter. Not only Hollyhocks, but also many other hardy plants, often suffer from inclement winters, owing to their not being established before frost sets in. Much depends, too, upon the state of the ground, the surface of which should be kept loose and dry by being frequently stirred up with the hoe. A close, hard surface sometimes causes an unhealthy growth through the sourness of the soil. These remarks apply to all classes of hardy florist's flowers put out in the open ground.

Pansies.—Our hardy plants in pots increase almost too fast, but it is nearly impossible to resist the temptation of trying to grow a frameful under glass. Last season it was late before our plants were put out in the beds, and they did not do well; quite two-thirds of them were killed in winter by the frosts and wet combined. Had they been well established before winter probably not one would have been injured. We will grow one of each variety in pots, and probably the others will be placed in boxes and be kept under glass to be planted out in February or early in March as the weather may determine.

Polyanthuses.—These are much more attractive to insect pests than Auriculas, and a word of caution in respect to them may not be out of place. I had some choice varieties from the north this week with the remark that they had been attacked by red spider in summer, but that it was probably gone now. That, however, was not the case, the undersides of the leaves being quite alive with this pest. I dipped the leaves in strong soft soapy water and killed it. This I merely state as a warning to those who may see the leaves turning yellow. No doubt red spider is the cause; green fly is also very fond of the leaves, and it can also be destroyed in the same way as red spider. Primula amœna and its varieties must not be neglected at this season. Ours have just been repotted, turning the plants out of the pots and breaking them up into pieces; if a certain-sized pot is full of crowns, these, when broken up, will fill two pots of the same size. I use for these the same soil as that which is recommended for Auriculas, and place the pots in frames near the glass.—JAS. DOUGLAS.

Stove.

There are now many plants that annually go to rest through the winter, and that require gradually inducing to that condition. Amongst these are the last of the Achimenes, Gloxinias, Caladiums, and others of a like character. As with those that made their growth earliest in the season, and have gone to rest some weeks ago, these latest must be dried off by degrees, not subjecting the foliage to over-sudden destruction through the complete absence of moisture in the soil, or the roots are certain to suffer.

Anthurium Scherzerianum.—Where several examples of this plant are cultivated it may be had in flower over the greater portion of the year. The individual blooms may not be so appropriate for using in small combinations of cut flowers as some things, yet two or three with long stalks can with advantage be employed in large vases, where their lasting properties will be an advantage. In no way is the plant more useful than when grown in medium sized form, and placed about on the stages amongst other plants, especially Orchids, where its colour and general character contrast with those it is thus associated with. A lower temperature than it often is subjected to will result in stronger growth and larger flowers than when kept hotter. The coolest end of an intermediate house, where the temperature will not run above 50° in the night, just suits it, and if the plants are furnished with a full complement of healthy roots, they will be now in the height of their growth, and must be plentifully supplied with water. There are almost innumerable forms of this Anthurium, differing very much in the size of their flowers, but the best varieties are in this very much

influenced by the healthy condition of the roots, which, if through any cause happen to get deficient in quantity and active power, I have found it to take two or three years careful treatment to reinstate the plants in their wonted vigour. Plants that pushed up their flowers in the early part of the year, and which have now finished their growth, which may be easily seen by the matured state of the leaves with no disposition to produce more, should now receive considerably less water; but as it is in reality a swamp plant it must by no means ever be allowed even when at rest to have the material in which its roots are placed quite dry; but if more water than necessary is given now, when no growth is going on, the excess of moisture accelerates the decomposition of the material in which the roots are placed, a circumstance which should be avoided.

Eucharis.—Amongst large white flowers where a continuous supply is wanted, there are few, if any, that equal the *Eucharis*, especially the well-known *E. amazonica*. No matter how extensive the stock may be it is necessary to vary the treatment with portions of it, so as to ensure a successional supply of bloom, otherwise it is quite possible that, even with a moderate-size houseful of it the cultivator may find himself at times for a considerable period without so much as a single flower, whilst at other times there may be many more forthcoming than are needed. Though so easily managed that by alternate periods of rest and growth the plants can be induced to flower at any season of the year, yet I have found that by dividing the stock into three or four batches, which were each excited into growth and put to rest at given times, each lot of plants so treated in the course of two or three years got into a regular habit of coming on at the time when they were required. During winter the flowers are of most use, and if the portion of the stock that bloomed and made growth early in the season, and have been kept sufficiently dry with more air, so as to check further leaf production, are now put into a brisk heat, they will very soon begin to throw up flower stems. By similarly treating another portion, so as to induce rest for the next two months, they will by the close of the year be in a condition for forcing, the flowers they produce keeping up a supply till spring is well advanced. It is only by treating this plant systematically that its blooms can be had at the time wanted. Independent of the value of its flowers for cutting, the purpose for which it is most generally grown, where blooming plants are required to occupy small vases and similar contrivances, there are few plants so effective as single bulbs of this *Eucharis* grown in 6-in. pots; the four or five healthy leaves from which spring a single stem of flowers with which a well managed plant is furnished, have an effect so employed such as few other subjects are capable of producing. The flowers will keep on the plants in the temperature of an ordinary living room for ten or twelve days, and even when the weather is cold this *Eucharis* suffers less than most stove plants so treated. *E. candida*, yet comparatively scarce, may not turn out to be so manageable as *E. amazonica* as regards flowering at any time, but it is nevertheless a most desirable plant. Its smaller more elegant flowers are by many held in preference to those of *E. amazonica* for bouquets. Though impatient of too much sun during summer, from this time until spring both plants cannot be too much exposed to the light. They are especial favourites with mealy bug, and where that pest exists there is no remedy except keeping a watchful eye upon them, otherwise the bug gets down into the crowns of the plants, and on the undersides of the leaves, to an extent that in a short time so far injures the foliage as to much reduce the blooming capabilities of the plant.

Ardisias.—These, which are amongst the best of small berry-bearing plants, are, in many cases, late in getting the berries fully coloured this year, and in order to accelerate this they will require keeping in a little more warmth than would be necessary during ordinary seasons; but they must not be kept too hot, or frequently when submitted to a lower temperature the berries fall off prematurely. Plants raised from seed, or in spring from cuttings, must not be allowed to stay in the little pots which they occupy too long, as the best system of cultivation to follow with them is getting them up to a sufficient size without delay; for if they get into a stunted, slow-growing state they almost invariably lose their lower leaves, the effect of which is to make them so unsightly as to necessitate their being headed down. The tough, hard texture of their leaves is such as to guard them much better against the attacks of insects than many plants, yet nevertheless if affected with aphides whilst the foliage is young its free development is stopped. Healthy leaves are requisite for the satisfactory appearance of all plants, even in the case of those that are grown for their flowers; but with these *Ardisias*, as with all other subjects cultivated for their foliage and berries, it is doubly essential that the leaves should be perfect.

Francisceas.—*F. confertiflora*, the best of all the *Francisceas* as well as one of the finest of stove plants, requires to manage it well to be differently treated from most things, especially where it is wanted to stand in a cool house when in flower. Its exceptional treatment

is this, that whereas most plants needing heat require to be kept in the warm position in which their growth has been made until the flowers are set, this *Francisceas* should at once be moved out of heat as soon as the wood growth is completed, but before the flowers are distinctly visible, otherwise they are apt to fall off. A temperature of 45° through the winter will suit it best. *F. eximia* and *F. Lindenii* will succeed under the same treatment, but are not so liable to drop their flower buds, yet in their case it is better not to allow the buds to get too large before being placed in cooler quarters for the winter. All the above will succeed when kept in a brisk heat after the growth is made and the flowers set; but in this case they bloom much earlier, and the flowers, when open, are so soft as not to admit of the plants being used for decorative purposes in green-houses and conservatories. *F. calycina*, which, like the foregoing, may be had in flower from late in the winter until the summer is far advanced, needs to be kept continuously in warmth, by which means, when in a strong healthy condition, it will generally bloom twice in the year. There is one reason why these *Francisceas* with their beautiful soft, purple-tinted flowers are not more generally grown, and that is where mealy bug exists it is a difficult matter to keep it under without injuring the plants, as their foliage does not bear the rough usage too often practised in clearing them of vermin.

Forcing Pit.

Bouvardias.—The present treatment of these will require to be regulated by the time the flowers are required. So manageable are they that little difficulty is experienced in getting them into bloom whenever wanted. As a matter of course, the strongest plants, such as grown from cut-back stools which bloomed last year, will be the furthest advanced in growth and in the best condition for blooming first; they will bear as much heat as most things, and, where the plants are really strong, will furnish through the winter greater quantities of flowers in succession when submitted to a brisk heat than where treated to an intermediate temperature. Plants like these, in common with others that make some growth through the winter, will be benefited by the application of manure water at short intervals; not only will it assist the development of the first flowers, but also those which come later upon the after growth. A portion of the stock of *Poinsettias*, *Sericographis Ghiesbreghtii*, and *Plumbago rosea*, and *Eranthemums*, will now need removal to the forcing pit where a structure of this description is at command, and where not available room must be made in the stove, as a moderate heat is necessary to bring them in at the time required, as also to enable such plants as the *Poinsettias* to attain the full size which in many places is required. Although they will bloom with less heat than is usually present in a general stove, still they are never so fine under the cooler treatment. See that the whole stock of all these plants is perfectly free from insect pests of all kinds, for, with plants like these, that it is necessary to keep in warm quarters, insects, if present, increase apace; they also interfere with the flowering, and entail no end of labour to keep them down. In addition to the above, a portion of any others grown to flower during the winter should likewise be placed under the conditions of heat that will bring them on.—T. BAINES.

Hardy Fruit.

Notwithstanding our gloomy forebodings, the Apple and Pear crops hereabouts are turning out fairly well, the fine weather which we have recently had having wonderfully assisted the free swelling of the fruit. So much has this been the case that some few kinds of both Apples and Pears are as good as in former seasons, notably the following Pears—*Pitmaston Duchess*, *Marie Louise*, *Duchess de Angoulême*, *Beurré Hardy*, *Brown Beurré*, and *Durandean*. The following kinds of Apples are remarkably fine, viz., *Ribston Pippin*, *Cellini*, *Keswick Codlin*, *Blenheim Orange*, *Warner's King*, and *Court Pendu Plat*. I name these that intending planters may make note of them, seeing that they are so good in a season that has been so adverse to hardy fruit generally. Fruit gathering will soon be at an end, and the fruit room will require careful management till all the fruit has undergone the "sweating" process, which invariably takes place during the first week or two after storing. Keep the ventilators open night and day (unless the weather is excessively wet), and as soon as the fruit seems dry, and has got thoroughly inured to the temperature of the room, then ventilate for about a couple of hours every fine day, and close up during wet, fog, and frost. The fruit should be stored as thinly as space will allow, both to ensure its better keeping and to permit its being examined for the purpose of removing any that have begun to decay. Any specimens that is desired to keep for exhibition or other special purposes, should, when thoroughly dry, be wrapped up separately in tissue paper, and placed in drawers or boxes with the view of excluding atmospheric influences as much as possible. The weather is now most favourable for planting, root pruning and top-dressing, to which reference was

made the other day (p. 311), and the sooner such work can be done the more successful it will be. There is also another reason why this year it should be done early, and that is that a moderate disturbance of the roots will probably have a beneficial effect on the ripening of the wood, which in many cases is unusually immature; and a check thus given will conduce to maturity without danger of the wood shrivelling, seeing that there is so little sunshine, and the ground and atmosphere so moist. Peaches on open walls here have and are ripening off their fruit well; all the following kinds have furnished excellent fruit during the last two or three weeks, viz., Early Grosse Mignonne, Bellegarde, Sulhampstead, Royal George, Noblesse; and now Barrington and Walburton Admirable are ripening fast. As soon as the foliage manifests any tendency to drop, a light brush over with a hair broom will bring some of it down, and prove beneficial, especially where the wood is so crowded that the foliage intercepts the admission of light and air; no force, however, must be used to bring the foliage down, for until it parts from the trees with but the slightest pressure its functions are incomplete.—W. W.

Extracts from my Diary.—October 20 to 25.

FLOWERS.—Preparing border for planting Stocks. Planting border with Carnations and striped Pinks taken up from beds were they were layered, edged with variegated Watercress. Staking Adiantum Farleyense and Bouvardias, and placing the latter in the greenhouse for flowering. Looking over and surface-dressing *Deutzia gracilis* for forcing, also *Prunuses* and *Lilacs*. Taking standard *Laurustinus* from outside and setting them in cold houses for the winter. Getting bedding plants into Vinery.

FRUIT.—Pruning Black Hamburgh Vines and cutting out a few rods not required. Trenching up north border for Plums. Digging up Raspberry suckers. Cutting all ripe Melons ready for use. Looking over Apples and Pears in fruit room, and shelling Chestnuts ready for dessert.

VEGETABLES.—Trenching and manuring borders for spring cropping. Turning Mushroom manure. Tying and stopping Cucumbers and Tomatoes growing for winter use. Cutting all Broccoli ready. Getting handlights on sheltered borders ready for planting Cauli-flowers to stand the winter. Sorting seed Potatoes in store rooms; picking out those that are too small for seed. Cutting all Mushrooms ready for use, and getting remainder of Tomatoes into late Vinery to ripen. Potting Early Ashtop Potatoes in 8-in. pots and placing them in a cold frame. Looking over Tomatoes in Vinery and picking out bad fruit. Picking male blossoms off Cucumbers. Shelling Broad Beans for seed. Pouring liquid manure on Mushroom manure. Pulling up main crop of Nantes Carrots and Student Parsnips, and storing them away in heaps. Carting manure on ground ready for winter digging. Sowing a batch of Osborn's Forcing French Beans. Pulling up exhausted Cucumbers and preparing house for French Beans.—R. G.

GARDENING AT HOOLE HOUSE, NEAR CHESTER.

HOOLE HOUSE, which is approached by a winding carriage-drive planted on either side with ornamental trees and shrubs, is entered by a small glass corridor, in which some fine old plants of *Cassia corymbosa* are just now flowering freely. On leaving the house to the left, and passing through a small gateway, the rock garden and herbaceous beds are presented to view. Hundreds of fine herbaceous plants may here be met with; some of them very rare. These are grown in circular beds on the lawn. Among them I noticed *Lilium auratum*, with from 12 to 42 flowers on a spike; *Anthericum Renardi*, with upwards of 100 spikes of snow-white blossoms; *Coreopsis lanceolata* and *Gentiana septemfida*, all in good condition. The rockery, too, is most interesting, being a miniature representation of the Bernese Alps. It is thickly planted on two sides with Irish Yews and Ferns; amongst the latter I noticed *Cyrtomium falcatum* and *Adiantum pedatum*, both of which withstood the severity of last winter. *Cystopteris fragilis*, together with *Polypodium calcareum*, are also abundant here. The third portion of the rock and that which faces the house is almost completely covered with *Aubrietias*, which cling tightly to the rock. *Dianthus deltoides* and its white variety and *Erinus alpinus* are also all here associated with *Arenaria multicaulis*, which may be seen in abundance on every ledge of rock; the *Erinus* is allowed to drop its seed year by year, and, judging from the large tufts of it which are here, it must be a magnificent sight when in flower. Two plants I must not omit to mention are *Anthyllis montana* and *Phlox setacea*, tufts of both of which I saw large and fine. The former stands alone on a raised piece of rock about 2 ft. high, the sides of which are well clothed with its glaucous leaves. It had borne upwards of 150 flower-stems.

The glass department must not be overlooked; the range consists of conservatories, well filled with summer-flowering plants; Cucum-

ber and Melon houses, Vineries, stoves, Ferneries, Orangery, &c. In the Cucumber house was a plant of *Allamanda Hendersoni* trained to the roof, bearing upwards of 1000 fully expanded blossoms. The house in which it is growing is some 30 ft. long and 12 ft. wide. The Cucumbers are allowed one-half of the roof and the *Allamanda* the other. The plant in question was from a cutting struck only three years ago; when large enough to handle it was transferred to a bed in one corner of the house specially prepared for its reception. A small collection of well-grown Orchids occupies a portion of the stove, in which are also many plants of *Scutellaria Mocciniana* flowering profusely, together with large quantities of *Achimenes*, *Gesneras*, and *Clerodendron falax*, and some good examples of *Dracenas* and *Crotons*. Suspended from the roof in a basket, and flowering freely, was a fine plant of the Mountain Bladder-wort (*Utricularia montana*) and an endless variety of other plants, which to name in detail would occupy far too much space. H. J.

THE INDOOR GARDEN.

CULTIVATION OF DUTCH BULBS.

HYACINTHS IN GLASSES.

FROM Hyacinths in pots to Hyacinths in glasses is a natural transition. The latter method affords a pleasant and delightful indoor recreation. There are many persons whose only chance of enjoying the sight of flowers is restricted to what can be done within doors; and to such the Hyacinth is one of the most suitable subjects that can be taken in hand. It is an easily-managed plant when grown in this way. Let the home-cultivator but start well, and then a small amount of attention, that never becomes irksome to one who loves the work, will bring well-developed and lovely flowers.

Now is the time to think and set about the culture of Hyacinths in glasses. As a rule it is not well to put the bulbs in water too early. After growing Hyacinths in glasses for many years I have come to the conclusion that it is well to select the bulbs early, taking care to have them sound and not too large for the glasses, and then put them in a dry and cool place until the ring at the base of the bulb shows signs of swelling, owing to the inclination of the incipient rootlets to become active. As soon as this occurs the bulbs should be placed in contact with the water. Some sorts root much more freely than others; among the latter may be included the deepest coloured reds. Robert Steiger is a charming variety for a glass, but it does not always root well, and I have tried the effect of placing the bulbs for a time on some moistened Cocoa-fibre, and so induced them to start into growth before the bulbs are brought into contact with water. They should not be allowed to remain in the fibre after the roots have gained the length of from $\frac{1}{4}$ in. to $\frac{1}{2}$ in., as they then begin to take an outward direction, and a little difficulty is experienced in getting them into the glasses; besides they are very brittle at that stage of growth, and need to be handled with care.

Now as to the glasses. Let us hope that the old, tall, upright chimney is now quite abandoned. It is ugly in shape, common in appearance, and top-heavy with the weight of the spike. The support for fixing the spike is a clumsy contrivance, and always unsatisfactory. When the late Mr. G. P. Tye, of Birmingham, introduced his registered Hyacinth glass many years ago, this difficulty was obviated, for while it was well suited for the growth of Hyacinths in water, it was also an elegant chimney-piece ornament, and well suited for holding cut flowers in summer. Hyacinth glasses are now manufactured of various materials, and in handsome designs, and having supports well suited for the purpose for which they are intended.

The tendency of the water in Hyacinth glasses to become putrid is a difficulty with many. I have found it of great value to place in each glass a few small pieces of charcoal, and this seems to keep the water sweet. The glasses are filled up sufficiently high with clear fresh rain-water, and the charcoal is dropped into it. Then the bulbs are placed in the glasses, allowing the water just to touch the base of the bulb. Rain-water should not be employed unless quite fresh and clear, or otherwise it soon emits an offensive smell, and causes the roots of the bulbs to decay. If there is no alternative but to employ hard water, it should be exposed to the influence of the sun for a day or two previously. The glasses can then be placed in a cool dark cupboard or closet, or in a dark cellar for a time, to induce them to root downwards before they begin to make an upward growth. I do not think this is so necessary as is generally supposed; but it is so constantly recommended that one can hardly be an exception to the rule. I have grown very fine Hyacinths in glasses without placing the glasses in the dark, but I always prepared the bulbs for the glasses as above recommended.

There are many failures with Hyacinths in glasses, but it is not the fault of the bulbs but of the indifferent treatment they receive. Two causes operate to bring about a failure, viz., keeping the glasses in too warm a temperature, and refraining from giving the necessary supplies of water. Perhaps there is one advantage after all in placing the glasses in the dark for the space of six weeks or so, namely this, that during that time the bulbs, when least interesting, are subjected to a uniform temperature, and do not get unduly excited into growth. When the glasses are brought to the light they should be placed near the window, where plenty of light and air can be given them. After Christmas the growth will be rapid, and the prime requisites are to keep the plants growing sturdily, to take care they do not become drawn in the foliage, to have the water sweet and wholesome at the roots, and to keep the water in the glasses up to the base of the bulbs. As soon as the spike of flowers becomes tall enough, the support, which can be bought with the glass, should be placed in position, and as the spike lengthens, the supporting hook should be raised to the necessary height.

Hyacinths in glasses are, as a rule, badly managed in the extreme, for it is not unusual to see a spike of flowers hanging down over the top of the glass from want of a support, and the glass but half-filled with water. It is a rare exception to see Hyacinths well grown in glasses in the windows of houses; and yet they can be grown there very finely indeed!

Next to Hyacinths, the only Dutch bulb that can be grown in water with anything like satisfaction is the Polyanthus Narcissus; but these become somewhat drawn, and the perfume they exhale is so powerful as to be even disagreeable in a close room. Scillas, Crocuses, Tulips, &c., all are more or less disappointing, unless they receive the closest care and attention, but even then they are seldom so satisfactory as could be desired.

Those who live in cities and towns can do far more in the way of growing Narcissus, Crocus, Tulip, Scilla, Hyacinth, &c., in pots than is generally supposed. Pots cost but little, and they need not be very large. Soil can be got from any seedsman or florist, and the purchaser will do well to procure also a little fine Cocoa-fibre dust and mix with the soil, and a little coarse white sand also. The pots should be well drained, and the bulbs three parts buried. But what can be done with these when potted? I have had to face such a difficulty as this, and surmounted it by buying a large Tea-chest or two, sawing them in halves and making them into two boxes, and then placing them in a back yard; I put the potted bulbs in them, and cover them with Cocoa-nut fibre refuse. I always raised the box and pots on bricks, so that all rains would freely pass away. A piece of galvanised wire was put over each box to keep the contents from interference by cats, and, as in the case of the exhibition Hyacinths, the pots should be lifted out when they commence to make an upward growth, and taken into the house and gradually inured to the light, and kept in the window as cool and airy as possible. A few common clay saucers with a little coarse gravel in them need to be provided for the pots to stand in, and these will be found a positive advantage, as evaporation takes place in a rapid manner in a sitting-room where a fire is constantly maintained during winter. In this way excellent flowers can be had, bright and effective in appearance, putting one in mind of the flush of spring that will by-and-by pervade the face of Nature. I have found that such flowers are harmed but very little by any gas burned in the room. If dwellers in towns would try, they will be both surprised and delighted with the success that will result from their efforts, if practised with ordinary care and attention. Some care is necessary in selecting suitable Hyacinths for growing in glasses. The single varieties are undoubtedly the best, and a selection of those most suitable might consist of Duchess of Richmond, bright pink; Emmeline, delicate blush striped with pink; Gigantea, pale flesh; La Dame du Lac, bluish, suffused with pink; Madame Hodson, light pink; Norma, waxy flesh colour; Robert Steiger, or Maria Catharina, fine deep crimson; and Sultan's Favourite, flesh striped with pink. All the foregoing are classed with the single reds. Of single blue varieties the following are very good for the purpose; Baron Van Tuyll, deep glossy purple; Bleu Mourant, dark blue; Charles Dickens, bright porcelain blue; Emicus, blue with light centre; Grand Lilas, delicate azure blue; Leonidas, clear bright blue; Mimosa, dark blue purple; Orondates, pale porcelain blue; Prince Oscar, striped deep blue; and Regulus, shaded lavender blue. The best single white varieties are alba superbissima, pure white; Cleopatra, creamy white; Grandeur à Merville, waxy French white; Grand Vainqueur, pure white; Mont Blanc, pure white; Seraphine, creamy bluish; and Themistocles, pure white. Of single yellow varieties, Anna Carolina, clear yellow; Heroine, pale yellow; and King of Holland, pale yellow shaded with reddish-orange.

The foregoing are cheap varieties, the prices bringing them within the reach of all. There are, of course, more expensive varieties which can be selected at the will of the cultivator. R. D.

Selaginella helvetica.—"A. D." (p. 194) recommends this *Selaginella* as a capital rock and carpet plant, but doubts its hardiness. A large quantity of plants of *Selaginella helvetica* remained uninjured in the open ground in my nurseries for the last six years without the slightest protection. This will, I think, sufficiently prove its being quite hardy.—A. N. C. JONGKINDT CONINCK, *Dedemsvaart, Netherlands*.

LOW'S NECKLACE VANDA.

(VANDA LOWI.)

THIS is one of the most striking of Bornean Orchids. At the foot of Sirambau, in the province of Sarawak, is a warm spring, and on the trees and rocks around this plant abounds and produces its necklace-like drooping flower-spikes plentifully. Its habitat is



Vanda (Renanthera) Lowi, showing epiphytal habit of growth.

interesting and is visited by most travellers, in Sarawak as it is within easy reach of the capital, and although the way to the summit, up rugged paths, through shady forests, close jungle, or Dyak clearings, is rather toilsome, one is rewarded on reaching the top; there a pretty cottage was erected by the late Sir James Brooke at a spot called Peninjau, or "long view" rock. Close at hand is a natural bath house, a cave through which the coolest and purest of water always flows, and the lower slopes are covered with fruit groves of large extent, the Durian trees here being especially large and handsome. Vanda Lowi has never been a common plant in collections; it is rather difficult to establish by modern Orchid growers who, as a rule, starve this species and its allies *V. cœrulea* and *V. Cathcarti* by withholding water during the winter months. Now that the plant is again being imported, and is likely to appear in still greater quantities at auction sales, however, let not our home growers forget that it grows naturally in the hottest and wettest climate in the whole world. With many the reputation of the plant has suffered by its having been reported that only plants of elephantine proportions would yield

flowers. This is a misconception, as small plants, if liberally supplied with water and heat, and kept near the glass in full sunshine from the time they are received as imported, will bloom at 12 in. to 18 in. in height, producing spikes three or four times their own length. The fact that the two first flowers, *i. e.*, those nearest the plant, are of a different colour from the others is well known—the reason of their being so is not, however, very apparent, at any rate not definitely known. The long drooping spikes dangling among other vegetation may, perchance, like the tails of *Selinipedium*, *Cirrhopetalum*, *Uropedium*, and *Aristolochia*, serve as ladders for wingless insects whose presence may be essential to fecundation. The long spikes of golden crimson-blotched flowers last long in perfection, and are singularly beautiful as well as quite distinct from those of

that an old plant of it which we have here, that has probably seen thirty summers, on the back wall of a greenhouse has been one of the most floriferous plants of the year, and as yet shows no sign of losing its load of blossoms. I think that some of the older varieties of *Fuchsia* are well worth looking after for walls or pillars, for few of our indoor plants can equal them either in beauty or in continuity of flowering, and when planted out they are seldom attacked by insect pests like those in pots, their increased vigour appearing to defy the ailments to which plants in pots are liable.—J. GROOM.

COOL ORCHIDS.

IN reply to "C." (p. 336), I wish to say that the object of my previous remarks (p. 305) was to show that *Odontoglossums*, &c., could be well-grown as cold house plants, by giving a detailed account of how mine had been treated, and not to condemn any other mode of treatment. At the same time I wished those who give their Orchids much heat to bear my remarks in mind so that they might avail themselves of them should anything untoward happen to their plants. The reason I remove them in September from an unheated house to one in which piping is placed is that they may be kept in that house for some time without artificial heat, in order to accustom them to it before it is necessary to apply a little heat so as to maintain the proper temperature at this season of the year, viz., 50° by night, and 60° by day, rising a little more with sun-heat. To the second query I reply that the advantage of cool treatment (if consistently carried out) is that the plants in all stages do equally well together, very few of them requiring rest in the ordinary acceptation of the term. With respect to the general condition of the plants treated as I have described, almost all the bulbs show a marked improvement on those previously made—an improvement which has been constantly going on. They make two sets of bulbs each year, and those which are strong enough (often some very tiny plants) flower from each bulb, and do not shrivel as they do in heat while flowering. Many are now in flower, and quantities are sending up spikes, some as thick as a stout quill pen. *Odontoglossum cirrhosum* I did not move to a north house in May, with the exception of a few plants which did fairly well. I think "C." misunderstands me in reference to the recommended minimum temperature of 45°. I advise it only as the lowest night temperature during the dead of winter. While on the subject of cool Orchids, it may be well to mention a circumstance which, in my opinion, is not irrelevant. About five weeks ago there came up from among the roots of some *Cœlogynes* freshly imported from Assam, two little plants from seed evidently imported amongst the roots of the *Cœlogynes*; being too small to recognise, I potted them into small pots, and kept them in the warm house; in about a week they had pushed out a sickly-looking leaf or two, but sufficiently large to enable me to recognise what they were. They were without doubt *Chrysanthemums* of the large-flowering section. Had they been something I did not know, they would perhaps have been left in the warm house to die; as it was, I removed them to a very cold house, and in a week gave them a liberal shift into 5 in. pots, with good soil having a sprinkling of Clay's Fertiliser in it; the one measures now 1 ft. across, and the other 1 ft. 6 in.—short, stout plants. I say, in the case of plants growing naturally on the same spot, can the mere fact of one being an Orchid and the other a *Chrysanthemum* make the one a hothouse plant and the other a plant which will positively and certainly die in a hothouse? I think one may take it at least as a gentle hint that the *Cœlogyne* in question, as well as all the rest of the Orchids from the same locality, will grow well without much artificial heat. JAMES O'BRIEN.



Blooms of *Vanda Lowi* ($\frac{2}{3}$ natural size).

any other species of the genus. Our sketches show the natural habit of growth assumed by this plant in its native habitat, and flowers two-thirds their natural size. B.

Fuchsia corallina.—Some twenty years ago this *Fuchsia* was largely grown for covering roofs of greenhouses or as a pillar plant, as its vigorous habit of growth and continuous flowering made it a showy and suitable plant for such situations. I remember a fine example of it at Cliveden, which, being inarched with various light-coloured sorts, had a pretty effect drooping from the roof in large masses; and some of the large standards at Dropmore, that used to be plunged out in summer were, I believe, of this variety. It is now well-nigh superseded by double or semi-double sorts, but I must say

Training and Tying Plants.—Mr. Baines' description and condemnation (p. 304) of specimen-trained *Pelargoniums* and *Chrysanthemums* as monstrosities, which, he says "are painful to look upon"—and I agree with him—looks very like the pot calling the kettle black. I have often seen such specimens as he describes, but never admired them any more than I did Mr. Baines' formally-trained *Ixoras*, *Heaths*, *Azaleas*, and other plants which, so far as training was concerned, differed in no way from the *Pelargoniums* of his neighbour in the next tent, except in so far as the necessities of the different subjects demanded. It would puzzle Mr. Baines, I fancy, to tell us why a flat or a round *Pelargonium* or *Chrysanthemum* should excite feelings of pain in the beholder, and a globular or flat-headed *Heath* or *Ixora* or pyramidal *Azalea* should not, examples of which Mr. Baines has often exhibited in his time. It is perfectly well known that Mr. Baines' exhibition plants were models of the perfectly formal style of training, as those who have seen his plants during his career as an exhibitor can testify, and I doubt if ever he raised his voice as a judge of *Pelargoniums*, in which class, I imagine, he has often officiated, against their formal training. His objection,

too, against pyramidal-shaped trellises for Azaleas is quite beside the mark. The question is not the way of manufacturing such specimens, but, of making them at all. What is the difference between Mr. Baines' pyramids built up without a trellis and one formed by the aid of such a contrivance which, I presume, is designed to simplify the matter, while the end accomplished is the same in both cases?—CONSISTENT.

Filmy Ferns.—If Mr. Brook will refer to the *Gardeners' Chronicle* of 1st March last (p. 276), he will find there suggested the plan he has tried practically (p. 337)—a pit or sunk frame in which to grow filmy Ferns. I believe with him that many of these are much more hardy than is generally supposed. No class of pot plants requires less care or attention if the situation in which they are placed is favourable, and no vermin that I am aware of ever attack them. A hole dug in a damp shady spot, and covered with a sheet of glass, where, as Mr. Brook says, little else would grow, would suit admirably, and a small piece of ground so situated might contain a large and valuable collection. If the ground is naturally moist enough the plants might be left for days or even weeks without care. Unfortunately filmy Ferns are very expensive, and beyond the reach of those who probably would appreciate them most. Self-sown *Todeas* are plentiful with me, however, and I could spare a dozen or two of seedlings to persons wishing to try the experiment on sending me an addressed envelope. I should like much to see the cultivation of this beautiful class of Ferns more widely spread. Mr. Thomson, formerly Government Botanist in Jamaica, also speaks of the hardness of filmy Ferns in their native habitats. I happened to make his acquaintance lately in Edinburgh, and asked him to come and see a collection of filmy Ferns which I had received some years ago from a friend in Jamaica, and which were growing very satisfactory. He looked at them attentively and said, "Why I gathered these and packed them myself for a gentleman who said he was sending them to a friend in this country!" A few weeks ago I received another case of *Filices* from Jamaica, containing species different from the previous case, but unfortunately it had been packed by other hands than Mr. Thomson's, and all were dead.—P. NEILL FRASER, *Rockville, Murrayfield, Edinburgh.*

TREATMENT OF UNHEALTHY PLANTS IN POTS.

WHENEVER a plant shows signs of failing health the cause should be ascertained. If the plant showing signs of unhealthiness, such as sickly growth, be an old one, the best plan to do—in the case of hard-wooded plants—will be to reject it and begin with a young one, and try and avoid the error that led to the loss. Many hard-wooded plants are lost through being cramped too long in small pots in the young state, and then a sudden change to a more liberal regimen. These plants should be treated by gradually increasing their food supply; but perhaps the best course would be not to purchase such plants at all, as smaller plants that are young and thrifty are best adapted for forming handsome specimens; in fact, those that have been starved rarely attain old age. Immoderate or careless watering is the principal cause of unhealthiness in plants, and as soon as the first symptoms of disease appear, insects, mildew, &c., infest the plants, which might all be traced to a month or two of careless watering; or even so simple a matter as a badly placed crock in the drainage may cause all the mischief by obstructing the passage of water and free action of air. Unhealthy soft-wooded plants, even if large, may be restored to health by ascertaining and remedying the cause of the evil. This should not be a difficult matter. If a plant has had too much water, give it less. If the drainage be defective, turn the ball carefully out and arrange it properly; at the same time if the soil is sour and in a water-logged condition, remove as much as can be done conveniently, and transfer the plant to a clean, well-drained pot, and pot carefully in fibry soil well rammed down. Even soft-wooded plants should be potted firmly if dwarf and bushy and well flowered specimens are required. Cleanliness is a necessity in good plant culture; dirty pots and houses are sure signs of carelessness and neglect, and in such places unhealthy plants are commonly found.—E. H.

English and French Flower Shows.—Owing to my hasty writing several mistakes occur in the paper under this heading in last week's *GARDEN*. One I am particularly anxious to correct—that in which I am made to say there were eight amateurs who entered for the show of the National Rose Society at the Crystal Palace. It should have been eighty, as I wrote it, though doubtless illegibly.—DELTA.

A New Pot Scrubber.—We have received from Mr. H. C. Smythe, of Endell Street, Long Acre, a new form of a pot-washing brush made entirely of Cocoa-nut fibre. It is cheap, simple in construction, light yet firm, and is said to be very durable.

USES OF LEAF MOULD.

THERE are few people who have had much to do with the cultivation of either hardy or exotic plants but know something of the influence that leaf mould has upon the growth of those subjects for which it is commonly used. Of all vegetable substances with which we in this country are acquainted, there is nothing that has such a tendency to promote quick top growth, especially in soft wooded plants. Its effects upon plants like *Calceolarias*, *Cinerarias*, *Petunias*, *Fuchsias*, *Chrysanthemums*, *Salvias*, and *Primulas* in their early stages are always apparent by the quick growth and large ample foliage produced, so far as its use goes in the cultivation of pot plants. It is for these and a few others of a similar character, occupants of either stove or greenhouse, that it is best suited; and even in the case of the above, I would by no means employ it in the quantity many growers think beneficial. The influence it exerts on young stock from the seed-pan or cutting-pot up to the point when they have attained considerable growth, often leads to an unqualified impression in favour of its use; but it very frequently happens that when the time of flowering comes the appearances borne in their early stages turn out to have been somewhat deceptive, through the amount of bloom not being forthcoming which might have been looked for from the luxuriance of the plants.

Where nothing but a very inferior description of loam is to be had containing an insufficiency of vegetable fibre, then a liberal admixture of leaf-mould can no doubt with advantage be used; but when good loam is obtainable it will be found that a comparatively small quantity gives better results. Leaf-mould is often mixed with the soil for potting plants of a hardier description than those named, that have not to be shaken out and the greater portion of the material removed yearly; here its use is still less admissible, as it is destitute of the lasting properties essential to support health and vigour; the leaves of evergreen subjects formed under its influence are deficient in fibre to enable their continuing in a healthy state nearly so long as those produced by loam or peat without it; and however firm the soil is made in the operation of potting, it always shrinks to an extent that leaves the ball in a condition too loose and open consistent with the well being of the roots. Where I have found leaf-mould of the most service, has been where the loam available was of an over-strong, close description, and on using it for cuttings or seedling raising, a considerable portion of leaf-soil, say one-third, is better than an excess of sand, as the seedlings or young rooted plants can be moved without the breakage of their fibres that takes place if the soil is closer, and the vegetable matter furnishes fitting food for the young roots; this is especially the case in raising seedlings of half-hardy or hardy plants that have afterwards to be pricked out into pots, boxes, or seed beds. Again, in the use of leaf-mould its advantages depend a good deal upon the condition it is in when used.

Many of the old north country florists, growers of soft-wooded plants, with whom I was many years ago acquainted, often pointed with satisfaction to the age of the different potting materials they used, such as cow manure six or seven years old and leaf-mould possibly half as much; but in the case of the latter, when so far decomposed, much of its useful properties are lost, as when used in this condition it soon gets into a soft pasty state, all the fibre which it contains, in which half its value consists in keeping loam of a close nature open and porous, being gone. A mixture of leaves, such as Oak, Beech, Elm, Lime, and Sycamore combined, when they have lain together in a considerable heap for twelve months, so that they can be rubbed through a sieve, are very much better than when further reduced to a rotten condition.

T. BAINES.

Use of the Telephone in the Seed and Nursery Trade.—In visiting the seed and nursery establishment of Messrs. Dickson & Co., Waterloo Place, Edinburgh, the other day, I was not a little struck with the fact that they could transact business in their shop, Waterloo Place, and in their nurseries simultaneously. That is to say, their nursery foreman could negotiate a bargain with a customer in the shop while he remained at his post in the nursery a mile and a half distant. This was done by means of a telephone—Crossley's Patent Transmitter. The wires are conveyed over the tops of the houses for about a mile, with instruments for the transmission of messages at the shop and in the nurseries respectively. Signalling is done as follows; A small nut or spring on the instrument at one end is touched, a bell rings at the other, a return bell rings on your end. The message or conversation is then conducted by placing the conductor of the return wire to the ear and speaking in a subdued tone into the instrument. By this means conversation can be carried on with the party at a distance quite as well and as audibly as if the party were sitting with you in the same apartment. This is a most ingenious and, I understand, comparatively inexpensive machine, and the benefit of having the use of it applied to

the conduct of business must be most valuable. I am sure that the firm referred to with their usual urbanity will be glad at any time to exhibit its advantages to any parties desiring to see it work.
—AN OBSERVER.

GARDEN DESTROYERS.

THE ASPARAGUS BEETLE.

(CRIOCERIS ASPARAGI.)

THE Asparagus beetle is one of the prettiest of our English beetles, but Asparagus growers are, unfortunately, unable to regard them with such unmixed pleasure as an entomologist can, as they are so often the cause of much damage to his plants. If not kept well in check, the grubs of this little beetle destroy the foliage of the Asparagus to such an extent as to very considerably weaken the plants; they not only devour the leaves, but also eat the bark of the stems. Late in the season the heads which are cut for the table are sometimes spoiled by the large number of eggs which are laid on them. On the Continent the Asparagus seems to suffer from the attacks of this insect more than it does in England. M. Godefroy-Lebeuf, in his recent articles in THE GARDEN on the cultivation of Asparagus, states that "These destructive insects will devour a whole planta-



Asparagus beetle, &c.

Fig. 1.—The Asparagus beetle (magnified). Fig. 2.—The grub (magnified). Fig. 3. The cocoon (natural size). Fig. 4. Branch of Asparagus showing grubs and eggs (natural size). Fig. 5.—Eggs (magnified).

tion in a brief time if their ravages are not checked immediately they are perceived." Though our Asparagus beds, fortunately, do not suffer so severely as those of Argenteuil, every precaution should be taken to prevent this insect increasing to such an extent as to render such damage possible. The destruction of this insect is a troublesome matter, but it is by no means a hopeless task. When the Asparagus is being cut, a sharp look out should be kept for the beetles, which will just be beginning to make their appearance; and it is these early ones which it is most essential to destroy. When disturbed they feign death, and drop to the ground, so that some little care must be used in their capture. Later on in the season, when the plants have grown up, an open umbrella may be held so that they may be shaken over it, when the beetles are sure to fall into the umbrella, from which they may easily be turned into a vessel of boiling water, or on to some hard substance and crushed. The eggs (figs. 4 and 5), after a little practice, will be found without any difficulty, as they stand out at right angles to the leaves, which should be gathered and destroyed. In searching for the eggs it is as well to choose a day when there is little wind or sun; the former makes the delicate sprays move, when it is difficult to see the eggs, and the shadows caused by the latter are very confusing. The grubs (figs. 2 and 4) may be shaken off in the same manner as the beetles, but they generally cling pretty tightly to the leaves, so that perhaps gathering or cutting off the shoots on which they are and burning them is the most efficacious method of destroying them. The

gardeners' best allies in getting rid of this insect are the small birds, and it is no doubt greatly owing to their being so comparatively scarce on the Continent that this and various other insects are so much more troublesome there than they are in this country. The beetles generally make their first appearance in April, and may be found throughout the summer until September, during which period there are probably two or more generations; but, as beetles, eggs, and grubs may all be found together at the same time, it is difficult to ascertain how many with any certainty; the entire transformations are gone through in about six or seven weeks; they lay their eggs generally singly (but sometimes one may be found on the top of another) on the young leaves or shoots; in about a week or ten days the grubs are hatched, and begin feeding on the leaves, which they entirely destroy. When disturbed they raise their heads slightly, and emit from their mouths a drop of a blackish fluid, which at first sight gives them the appearance of having unusually large heads (see fig. 4). They change their skins several times, and are fully grown in about a fortnight or rather less; they then drop to the ground, and, having buried themselves, form thin papery cocoons, within which they become chrysalides; they remain in this condition about a fortnight or three weeks, at the end of which time the beetles emerge. Some of the beetles of the last brood, according to Mr. Westwood, survive the winter, probably sheltering themselves in the earth. The Asparagus beetle belongs to the family Chrysomelidae, 329 members of which are natives of this country; they are all vegetable feeders, both in the grub and beetle states; they may generally be found on the leaves of plants. The genus *Crioceus* only contains three species, all of which are injurious; besides the subject of this paper *C. duodecim-punctata* also attacks the Asparagus, and in the same manner as the Asparagus beetle; it is fortunately, however, rare in this country, although in some places on the Continent it is more abundant than the other. The third species, *C. meridionalis* or the Lily beetle, is at times the cause of much injury to the leaves of Lilies, but it is by no means common. The Asparagus beetle is about $\frac{1}{4}$ in. long, and is very glossy. The head is of a shining bluish-black colour, and furnished with a pair of long black antennae composed of eleven joints; the eyes are prominent and reddish. The thorax is rather longer than it is wide, with nearly parallel sides, and is covered with minute punctures; its colour is a brownish-red. The wing-cases are considerably wider than the thorax, and are striated with a number of longitudinal rows of fine punctures; they are of a yellowish colour, with the outer margins rather darker; the inner margins are bluish-black, forming, when the wing-cases are closed, a dark central longitudinal band. Each wing-case is further ornamented by three bluish-black spots, one of a rather peculiar shape on the shoulder, a somewhat triangular one in the centre (with one of its angles almost, and sometimes quite, touching the central band), and an oval one near the tip. The legs and feet are bluish-black, with the exception of the upper part of the shins, which are reddish. The description of this beetle given by M. Godefroy-Lebeuf in THE GARDEN of September 27, 1879, is by no means correct; he states that "It is of a red colour sprinkled with grey and white spots." The eggs are skittle-shaped, about $\frac{1}{20}$ th of an inch long, and of a deep shining brown colour. The full-grown grubs are about $\frac{3}{8}$ in. long. Their heads are black, their bodies of a greenish-slate colour, and composed of twelve joints; they gradually increase in size to the eighth, which is the largest, and then diminish. The joints are much wrinkled; the first three each bear a pair of black legs, which are very crooked, giving the grub a good hold on the narrow leaves. The remaining joints are furnished with fleshy tubercles, which serve the purpose of legs; just above these tubercles is a rather paler band, in which are the spiracles or breathing pores. The chrysalides or pupae are about $\frac{1}{4}$ in. long, and are enclosed in a thin membranous cocoon of a dirty yellowish-brown colour.

G. S. S.

The Auricula Aphis.—I have no wish to continue a discussion on this horrible pest, but must put myself right with regard to Mr. Douglas's observations (p. 332). I did not say that I had lost my collection by it, nor did I say that I had found paraffin unsuccessful. On the contrary, I stated that after using it I found that I had been "fairly successful with it." The case is simply that Mr. Douglas has never had it; I have. So happily ignorant about it is he, that I suppose it is that which he some time ago called mealy bug. He says, "If you get it, wash the plants well;" to this I replied that I had done so, and others had done so, but that we failed to eradicate it. On my mentioning Mr. Llewellyn's remedy (not mine), he advises it not to be done, but gives no reason; he still maintains his position simply on his own *ipse dixit*, and sets that opinion in opposition to those who have practically tested its efficacy. I may add that I received the other day a letter from one of our great northern growers, who has about 3,000 plants (seedlings excluded), and that he tells me a neighbour of his—one well known

as an exhibitor and raiser of first-class varieties—is nearly worried out of his wits by it. So again I need repeat do not pooh-pooh it, for it is a very formidable pest. So some ridiculed the Phylloxera at first, they could get rid of it; but, alas, its ravages increase, and Vine culture stands in danger.—DELTA.

The Short-tailed Field Mouse in the Garden.—This is a very active enemy in the gardens at Bodorgan, attacking and destroying various vegetables and hardy plants, and even entering the houses and barking the Vines at the base. The systematic destruction of the smaller vermin-destroying birds and animals has not been good for the garden.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

OCTOBER 14.

THERE was on this occasion an unusually interesting display, which, notwithstanding the lateness of the season, was, in point of attraction, decidedly superior to many that have occurred earlier in the season. Fruit was especially numerous, there being upwards of 200 bunches of Grapes shown, and all in excellent condition; and of Apples and Pears nearly the same number of dishes. These latter, however, were much below the average both in size and quality compared with that of ordinary seasons. Half-a-dozen Smooth Cayenne Pines were shown, which were, as regards size and form, as near perfection as possible. Tree Carnations, which were supposed to be forthcoming on this occasion, were conspicuous only by their absence, but their place was well filled by several interesting collections, especially that of winter bedding plants, consisting of hardy shrubs, skilfully and neatly arranged, which occupied a large space.

First-class Certificates were awarded to the following plants:—

Cypripedium Spicerianum (Veitch).—A remarkably distinct and very handsome Lady's Slipper. Its foliage is but slightly mottled; the flower, which is borne erect on a short stalk, has a pouch-like lip, of a green colour, obscurely netted with purple lines, the lateral segments of the same colour, with a conspicuous purple stripe along the middle of each; the upper part is white, also with a broad intermedial purple line, and the bright purple centre considerably relieves the dull colour of the other parts.

Pachystoma Thompsoni (Veitch).—A beautiful and highly interesting new Orchid, of which a note will be found in another column.

Oncidium dasytyle (Veitch).—The flowers of this species are comparatively large, with a broad lip of a pale yellow colour, as are also the other divisions, but which have in addition a few blotches of brownish-chocolate. The most remarkable part of the flower is the black velvety crest, which gives it the appearance of an insect.

Nepenthes Outramiana (Williams).—A handsome hybrid, the result of a cross between *N. Sedeni* and *N. Hookeri*. The pitchers have the same bright colour of the former with the size and form of those of the latter kind. It is a fine addition to this interesting class of plants.

Cocos elegantissima (Williams).—A very elegant Palm with the leaves in the way of *C. plumosa*, but with a gracefully arching habit which renders it a valuable decorative subject.

Calamus densus (Williams).—Also an elegant Palm with the leaves arranged in a dense manner as its name implies, and forming a handsome compact specimen.

Adiantum Bausei (Wills).—A very distinct and handsome Maiden-hair Fern supposed to be a hybrid between *A. trapeziforme* and *A. decorum*. As it appears to be intermediate between the two in point of habit and other characters, the surmise no doubt is correct.

A. cuneatum dissectum (Bull).—A pleasing variety having the pinnules deeply cut, which gives the plant an elegant appearance, and makes it desirable as a decorative plant.

A. mundulum (Bull).—A variety similar to the well known *A. cuneatum*, but considerably dwarfer in habit, and the fronds, moreover, are not so drooping as in the ordinary Maiden-hair.

Polystichum lentum (Bull).—A dwarf Fern of compact growth, with fronds nearly 1 ft. long, lance-shaped, with the pinnæ ending in bristles.

Coleus "Majestica" (King).—A variety with coarsely-toothed leaves, edged with a golden tint, with a broad midrib of bright green, and the intervening space of purplish-crimson hue.

Dahlia George Thomson (Turner).—A fine bedding variety growing from 15 in. to 18 in. in height, very floriferous; the flowers are bright yellow, moderately large, and of fine form.

Cycnoches Warszewiczii (Bull).—A botanical certificate was awarded this Orchid; it is alluded to in another column.

In addition to those mentioned above, there were in the group exhibited by Messrs. Veitch several other interesting plants. Amongst these were *Cælogyne Massangeana*, with a long, pendulous raceme of creamy-white flowers with the lip pencilled with chocolate, and the crest golden. The red-striped variety of the Golden Lily (*L. auratum rubro-vittatum*) was shown with several flowers, which were, unfortunately, past their best; it is a very distinct and handsome form, though at present very rare. The white-flowered variety of the pretty little *Oncidium ornithorhynchum* is an interesting plant; the flowers are quite white, except a spot or two of yellow. *Mormodes Ocaña* is a handsome Orchid, with large blossoms copiously spotted with chocolate. A fine variety of *Carnation*, named *Lady Musgrave*, is a desirable kind, as it has such a distinct erect habit of growth, with very glaucous leaves, and large, well-formed flowers of a rich deep crimson. Several fine Orchids were conspicuous in Mr. Williams' collection, more especially good examples of *Vanda cærulea*, *Oncidium tigrinum*, *O. varicosum* major, *Dendrobium superbiens*, *Maxillaria nigrescens*, with large, deep reddish-brown flowers, and *Cypripedium barbatum purpureum*, a variety with flowers of a deeper tinge of purple than the ordinary kind, and the beautiful golden *Dendrobium chrysotis*, which is not often seen in flower. A handsome plant of *Croton Rodeckianum*, with long, narrow, gracefully-arching leaves of beautiful golden, green, and crimson variegation, was also noteworthy. Several plants of the exquisite *Pleione lagenaria* formed an edging to this group, which had a fine effect. Mr. Bull also contributed an interesting collection, amongst which were the beautiful *Tillandsia Lindenii* (genuina), with its rosy flower-stems, and rich purple blossoms; the elegant *Curculigo recurvata striata*, and *Kentia Luciana* and *Zamia Skinneri*, bearing several cones, which was awarded a cultural commendation. In the same group were also the singular bronzy-flowered *Masdevallia velifera*, some beautiful kinds of *Oncidium*, and a fine form of *Bollea cælestis*. Mr. Green brought, as usual, some interesting plants from Sir G. Macleay's garden at Pendell Court, Bletchingly, consisting of *Brunsvigia Josephina*, with a huge head of flowers nearly a yard through; also cut specimens of *Passiflora Hahnii*, a beautiful species with ovate, pointed leaves, purple on the under surface, glaucous green above; the flowers are produced singly on the axils, and are white with a broad golden fringe; and a plant in flower of the exquisite little *Bulbophyllum purpureum*, with the segments of the flowers of a creamy-white, spotted with deep purple specks, which at first sight reminds one of *Restrepia antennifera*. Messrs. Wm. Paul & Sons, Waltham Cross, exhibited half-a-dozen trays of cut blooms of Roses, which, considering the season, were excellent. Of the beautiful variety *Duchess of Bedford* there were some good examples, and the Teas were in fine condition also. Mr. Noble, Bagshot, sent a bedding variety of Rose named *Queen of Bedders*, of dwarf compact habit, very floriferous, with flowers of a deep crimson. From Mr. Cannell came a collection of Dahlias of the florist's type, which were excellent, as were also the cut blooms of the single-flowered kinds that he has previously exhibited, together with the singular Cactus-flowered *D. Yuarezi*. A collection of the useful early-flowering *Chrysanthemums* in rich variety was also shown from the Swanley Nurseries. Dahlias were also shown in fine condition by Messrs. Rawlings Bros., Romford, who sent four dozen blooms of the show and fancy varieties. Mr. Turner, Slough, also showed the Dahlia well, and his new yellow bedder *George Thomson* will no doubt prove a most useful variety. Mr. Walker, Thame, Oxon, exhibited a quantity of cut blooms of *Tropæolum tuberosum*, the scarlet and yellow blossoms of which made an attractive display. Though an old introduction it is but seldom seen in gardens, and certainly not so fine as Mr. Walker showed it. This was deservedly awarded a cultural commendation. Mr. J. King, Reigate, sent half-a-dozen new forms of *Coleus*, some of which were very distinct and pretty, and one was awarded a certificate. Mr. Chambers, Westlake Nursery, Isleworth, sent some interesting varieties of Ferns, chiefly forms of *Pteris serrulata*, for which he was accorded a vote of thanks. One named *cristata fimbriata* was particularly elegant, and no doubt will prove a good decorative kind. Mr. R. Dean contributed cut blooms of *Physostegia imbricata*, a pretty Labiate with purple-lilac flowers; also a plant of *Marigold Diadem*, said to have been found in a cottage garden in Kent. The flower-heads were large, of perfect form, and the florets were lemon-tinted, with a distinct edging of deep orange, which has a very pretty effect. It is said to perpetuate itself quite true from seed, which much in-

creases its value. From Messrs. Haage & Schmidt, Erfurt, came cut flowers of a similar variety named Meteor, but as it was shown it was much inferior both in point of size and colour of blooms. The same firm also sent cut flowers of the handsome *Salvia farinacea*, a Mexican plant with lavender-coloured flowers blotched with white. Cut blooms of *Begonias* were sent by Messrs. J. Laing & Co., Forest Hill, including the superb Stanstead Rival, Reine Blanche, and other beautiful kinds. A similar contribution was also sent by Mr. Chambers. Mr. G. F. Wilson, Weybridge, exhibited cut flowers of the Closed Gentian (*G. Andreasi*) and the *Vaccinium-leaved Polygonum* (*P. vacciniifolium*), which are both useful plants for the rock-garden. In the Hall adjoining the Council Room, Messrs. Lee & Son, Hammersmith, exhibited a collection of hardy shrubs suitable for embellishing garden borders in winter. They consisted chiefly of Conifers, *Euonymuses*, *Ivies*, and other fine-leaved shrubs, tastefully arranged in neat designs; one side was edged with ordinary Box, and the other with *Euonymus microphyllus*, which is a capital substitute for it. The collection was, as last year, awarded a gold medal.

Fruit.—The Grapes shown on this occasion were, as before remarked, unusually numerous and excellent. Messrs. Lane & Sons, Berkhamstead, exhibited a collection of sixteen varieties, with three bunches of each. Among them were fine examples of Barbarossa, Trebbiano, Black Prince, Gros Colman, Muscat of Alexandria, Alicante, &c. The same exhibitors also contributed half-a-dozen Vines in pots, which were admirably fruited. They consisted of three of Foster's Seedling, carrying twenty-eight, twenty-seven, and twenty-six large and well-formed bunches respectively; two Black Hamburgs, with fifteen and sixteen bunches; and an Alicante with fourteen. For their exhibits Messrs. Lane were deservedly awarded a gold Knightian medal. Mr. Wildsmith, Heckfield, Winchfield, was awarded a silver Knightian medal for twenty-two bunches in ten varieties. They comprised some excellent examples of high class culture. Amongst the most noteworthy were fine handsome bunches of Gros Colman, Lady Downe's, Alicante, and Alnwick Seedling. The last-mentioned variety deserves a passing note, as it is a variety not often met with. It is supposed to have originated from Alicante and Lady Downe's, and it is considered to be superior to the former and scarcely inferior to the latter in point of quality, while for handsome appearance and finish, it surpasses both. A similar award was made to Mr. Goodacre, Elvaston Castle, Derby, who exhibited a similar collection, consisting of twenty-five bunches, in twelve varieties. These, too, were admirably well grown and exhibited. The best of them were Alicante, Barbarossa, Lady Downe's, Trebbiano, &c. A handsome new variety was shown by Mr. W. Allan, Gunton Park, Norwich. It is the result of a cross between Syrian and Alicante, and appears to partake of the character of both. The bunch is remarkably long and tapering, and the berries are elongate, and appear to finish well. One of the samples shown was grown in a late house, inarched on Lady Downe's, and the other from a Vine on its own roots. A bronze Knightian medal was awarded to this exhibit. Mr. Ross, Welford Park, Newbury, showed five Pine-apples of the Smooth Cayenne variety, which were remarkable examples of skilful culture, being of handsome form and fine size. The heaviest weighed 8 lb. 14½ oz., and the lightest 5 lb. 5 oz. A bronze Knightian medal was also awarded to these. Messrs. Veitch exhibited about a hundred varieties of Apples grown in their nursery at Southfield, Fulham. Notwithstanding the unfavourable season some varieties were quite on the average as regards size, but others were decidedly not so. An interesting point in connection with this collection is that all the fruits were taken from trees which, comprising the stock, only ranged from 3 ft. to 6 ft. high. A silver Knightian medal was awarded to these. A similar award was voted to Messrs. W. Paul & Sons for a collection of a hundred dishes of Apples and Pears. A few plants of Osborn's Prolific Fig were exhibited by Messrs. Osborn & Son, Fulham. It is a remarkably productive variety even in a small state, and no doubt will prove especially useful for pot culture, and the fruits are said to be large and finely flavoured.

Two seedling varieties of Shallots were sent by Mr. Pond, Jersey, named Jersey Lily and Jersey Giant Red. Fruits of Melons, Cucumbers, &c., were exhibited by other contributors, and a new purple-top Turnip named Early Munich came from the Society's garden at Chiswick, to which was awarded a first-class certificate.

Unseasonable Flowers.—The late fine weather, in addition to bringing out the ordinary summer bedding plants in better condition than they have ever been before this year, has also brought out quite a display of Primroses, Polyanthus, &c. Cultivation probably alters the season in which these flower, as one seldom finds the real wild wood Primroses flowering except when the days are lengthening. —J. G.

AMERICAN NOTES.

Viburnum nudum.—During July and August our grounds suffer in appearance from the want of shrubs in flower, and anything attractive then is welcomed. This *Viburnum*, though not in flower within these months, is yet most beautiful with its berries. It flowers in June, and after this is soon covered with green berries, hanging often in great clusters. These berries in time turn almost white, then change to rosy-pink, and at last to a deep purple colour. Often the whole of these colours are to be found on the same bunch—one berry changing colour a little in advance of the other. There are other native *Viburnums* valuable in the same way, but none that are as good as this one.

Vanilla Trees.—The delightful fragrance of the flowers of the Paulownia has obtained for it the name of "Vanilla tree." The English papers complain of thus robbing the Vanilla of its name, but it must be borne in mind that the "Vanilla" did not come by its name honestly. According to De Candolle the *Heliotrope* is the "original" Vanilla.

Picea pungens.—Dr. Englemann decides what has been known as *Abies Menziesii* of Colorado, and the *Abies Menziesii* of the Pacific coast, to be two distinct species, and has named the Colorado plant *Picea pungens*. It is to be regretted that this name has been chosen, as, on account of the confusion of generic names that exists among the Coniferae, it is like making two of one kind, as we already have a *Pinus pungens*. It may be as well to repeat that the plants known as *Abies* under botanical rules are *Picea*, and that those known as *Picea* are properly *Abies*. The transposition of these names, begun in error, has been so widely circulated that even botanists have held it hopeless to attempt correction, and have mostly yielded to the wrong. Dr. Englemann believes in always sticking to the right, regardless of success, and this is why he uses *Picea* in speaking of this Spruce.

The Arnold Arboretum at Boston, U.S.—Mr. Meehan gives an account of this which is encouraging for those who do not think that a garden should be arranged as an herbarium or a book. The collection of hardy trees and shrubs for the future Arboretum has already been going on for a few years past, and an immense number have been gathered together, leaving very few desiderata able to endure Boston winters. The grounds for the future Arboretum have been left by will for the purpose, but if a committee had been appointed for the purpose by some learned body to select a site, it is doubtful whether one could be found better suited to the purpose. There is level land, and again land very steep; there are rocks, and hills, and streams, open places and deep shaded woods, grand old trees already there, and vigorous young saplings. In some hands I should fear the great natural beauties might be spoiled by some fancied demands of science. The water Lily and the Tulip tree, the swamp tree and the tree from the high and exposed rocky hill—all would have to be brought into close association, for, behold, are they not found so on some herbarium shelves? But I hope that here they will be put where they will flourish best, and where they will look best; where they will add to the beauty already here, and to the pleasure of thousands in that locality; and that scientific arrangement will be left to the scientific works which, at any rate, the student must study, merely numbering and mapping all, that with guide book in hand the student may readily find what he wants.

Fern Etchings.—Mr. Williamson's book, "Fern Etchings," in which forty-five native Ferns are figured, has just appeared, and proves to be a very beautiful and valuable work. The price is \$7.50—by no means high for pictures of all our Eastern Ferns.

Rondeletia anomala.—This, one of the most beautiful of all summer flowering plants for American flower gardens, Mr. Hemsley identifies as the *Bouvardia strigosa* of "Plantæ Hartwegiana," or, as Mr. Hemsley now calls it, *Rondeletia strigosa*.

Japan Persimmon Fruiting in California.—Mr. Niles, writes: "I remember an editorial note of yours, which seemed in doubt as to whether the Japan Persimmon had fruited here. It has, and in a number of places over our State. Possibly fifty trees fruited last year, and twice as many this season; but of course they bore only a few specimens apiece."

Two Good Bedding Tea Roses.—Mrs. Melrose, Mass., writes: "I have tried two of the newer Tea Roses this summer—Marie Guillot and Comtesse Riza de Pare—and find them very much superior to the generality of Tea Roses for bedding purposes. They are extremely vigorous in growth, especially the latter, and most profuse in bloom. Marie Guillot is a rich creamy white, and Comtesse Riza de Pare is a peculiar shade of salmon-rose, tinted with copper. It is full, globular in form, and one of the most satisfactory Roses, both in habit and flower, that I have ever used."

The Climbing Hydrangea.—I notice a discussion on the *Schizophragma hydrangeoides*. I hope to send you next summer a photograph of one I know of growing on the Island of Yezo, by which you may judge of its great beauty. Colonel Clark had not the advantage of seeing this plant in full beauty, for he did not arrive here till the end of July, 1876, when the beauty of the plant was over; and, besides, that season was remarkable for drought, when everything suffered here.—**LOUIS BOEHMER, Hokkaido, Japan.**

Lantana Harkett's Perfection.—We saw some plants of this growing out-of-doors this year, and could not help feeling that if it had been an introduction from Europe, instead of an American seedling, it would be in great request for bedding purposes. Its peculiar yellow green tint of foliage would harmonise well with many bright colours in a mosaic bed. As a greenhouse plant it is not a success. In early spring especially, when among other plants, it has a sort of red-spider look, which may excuse one in passing it over; but out-of-doors, as we saw it the past summer, it passes out of this defect and becomes a perfect gem.

Zinc Labels with Lead Pencil Writing.—I can show you such labels made and written upon with common lead pencils as much as eight years ago, and if you visit my garden, you will find many such labels fastened to *Gladiolus*, *Rose*, and other stakes. They are cheap and durable, lasting a lifetime, if cared for. I find many gardens and fruit grounds entirely devoid of labels, and others marked by a piece of shingle or stake, written on with pencil. These, as every one knows who has tried them, are very unreliable, as they soon break down or the writing becomes obliterated. I go to the tin shop, obtain some waste pieces of zinc, cut them into strips about $2\frac{1}{2}$ in. long and $\frac{1}{2}$ in. to $\frac{3}{4}$ in. wide, punch a small hole near one end; purchase a few yards of copper wire—ordinary bell wire—cut it into pieces about 6 in. long, put a piece of the wire in each piece of the zinc, give it a twist—and my label is prepared ready for use. I keep a box of such ready whenever needed. I think every one who will try the zinc label will for ever after discard wood, and those who have never labelled their trees and plants will be highly gratified with the experiment, and will ever after adopt the plan.—*Gardener's Monthly*.

The Beauty of Hebron Potato.—Owing to the favourable reports read during the season of 1878, I concluded to plant a barrel of this variety of Potato last spring. I selected a Clover sod, ploughed about 9 in. deep, gave it a good covering of barn-yard manure, and harrowed it in—soil, a gravelly loam. The Potatoes, cut to one and two eyes, were planted on April 15th, in hills 3 ft. apart, two pieces to the hill. At the same time I planted in the same field Early Rose Potatoes of medium size, cut lengthwise, two pieces to the hill. Thorough cultivation and two hoeings were given to both, and the weeds were pulled late in the season. Results—the Beauty of Hebron came up three days before the Rose with stalks strong and vigorous. The tops died and the tubers matured at least ten days before those of the Rose, while the yield from ninety-eight hills of each was about a peck more of Beauties than of Roses. The tubers, too, were larger, smoother, and more salable. I am offered 45 cents per bushel for the Rose and 1 dol. per bushel for the Beauty.—*Rural New Yorker*.

Hydrangea paniculata grandiflora as a Standard.—A good deal is said now-a-days about the attractiveness of the standard form of this *Hydrangea*; or, in other words, people fancy that its great trusses must be specially fine, erected on a stem or standard, for very few have ever seen a really standard *Hydrangea*. The oddity of the form doubtless constitutes one of its attractions; but another may be certainly found in the fact that this form of growth brings out the effect of the flowers more prominently. It prevents likewise both foliage and flowers from being trailed and beaten into the ground. One objection made against the standard form is the crooked shape the stem generally insists on assuming. Viewed in another way, moreover, the standard form is unnatural—not adapted to exhibit the true habit of the plant grown under favourable conditions. If, therefore, standards are employed at all, a short or low stem should be accepted as the most practical and appropriate to the so-called Tree *Hydrangea paniculata grandiflora*.—*Country Gentleman*.

The Sorrel Tree.—This handsome shrub or tree (*Oxydendron arboreum*) is found wild in rich woods in Pennsylvania to Ohio and southwards along the Alleghanies, where it grows from 12 ft. to 40 ft. high. It is not generally considered very hardy so far north as Boston, but in the garden here are several bushes of it, some in open places and others in shrubby clumps, and they grow unscathed. About the middle of July every branchlet is terminated by a loose cluster of one-sided racemes of white flowers, that last in fair condition into August. The leaves, too, assume a gold and crimson colouring in the autumn. Notwithstanding the highly ornamental character of this plant, it is hardly ever found in private gardens;

indeed, only a few nurserymen have specimens for sale. Professor Sargent tells us that at the Arnold Arboretum they have found it rather difficult to propagate—the seedlings die off unaccountably.

Sarracenia purpurea.—Our common Pitcher plant, Side-Saddle flower, Huntsmans' Cup, Whippoorwill's Shoe, as it is variously called (*Sarracenia purpurea*), is advertised in England as having "withstood the severity of the late winter." As this plant is found in the Hudson's Bay region, we do not in the least doubt it.—*American Agriculturist*.

ANSWERS TO CORRESPONDENTS.

Furnishing Back Wall of Vinery.—What will be most profitable, fruit or flowers, to grow on the back wall of my Vinery, the height of which is 12 ft.? It is a lean-to, with an east aspect, and I shall force a little with hot water when the Vines are established.—**AMATEUR.** [There are few things amongst either fruits or flowers that will succeed well on the back wall of a Vinery after the glass roof is well furnished. Probably the most profitable plant to grow there would be the double white *Camellia*. Large plants of it might be planted in the border and be trained to the back wall, or, better still, grow them in large tubs to be placed out-of-doors for a time after the buds are set.—J. D.]

Tubers of *Boussingaultia baselloides* Eatable.—Can you tell me whether the tubers of this are eatable? and, if so, how they should be cooked? for the plant thrives here and the tubers increase at a surprising rate.—**S.** [We see no reason why the tubers in question should not be edible, considering that those of *Ullucus tuberosus* are constantly eaten in Bolivia and Peru. So far as the mode of cooking is concerned, boiling is, of course, the most simple. Alternate steeping and freezing, as practised with the native Potato, is perhaps the best way to prepare these waxy tubers for the table. Such treatment reduces their waxiness, but the process involves too much trouble.—J. R. J.]

Fern Insects.—My Ferns have suffered much from the enclosed insects. Would you kindly inform me what they are, and how best to get rid of them?—**A. S.** [The insects which have attacked your Ferns are a species of plant bug (*Bryocorus pteridis*) which is often abundant on the common Brake Fern. It injures the Ferns by puncturing their fronds with its proboscis, and sucking the juices. I should try Tobacco smoke, or shaking the plants over a sheet or tank of water, destroying the insects which have been shaken off.—G. S. S.]

Dæmonorops perianthus.—This is getting very yellow and delicate in my ordinary stove house, the temperature of which is from 50° to 74°. Would it do better in my conservatory?—**AMATEUR.** [If the plant is pot-bound or has been subjected to the temperature you state for some time past, its sickly appearance is probably owing to want of heat or root accommodation. Being a native of Sumatra, it requires a regular temperature of not less than 70°, combined with a moist atmosphere; a rise of from 5° to 10° above this would be beneficial, but a temperature below 60° is decidedly injurious. For the present give it the warmest place in your stove, and there let it remain until spring, when, if you find that it requires more pot room, repot it into a size larger pot, taking care not to disturb the matrix of roots formed at the base amongst the drainage, as no class of Palms suffer more from injury to the roots as the genus *Dæmonorops* and the allied genus *Calamus*. If, on the other hand, your plant has been over-potted, and the soil has got into a sour condition, on no account reduce the ball of soil into which the roots have penetrated; the only remedy in this case will be to regulate the drainage and loosen the surface soil.—C. M.]

W. S. C.—Your seedling Carnations are, like those you sent previously, good border flowers and well worth keeping.

P. J. W.—The leaves you sent have been attacked by the Celery fly, a description of which will be found at page 229 of the present volume of THE GARDEN.

Fruits.—**C. D. Pears:** 1, Marie Louise; 2, Duchesse d'Angoulême; 3, Beurré Superfin.—**Pomona.**—1, Beurré d'Arenberg; 2, Hesse.—**R. S. T.**—1, Blenheim Pippin; 2, Cox's Pomona; 3, apparently Cockle's Pippin; 4, Golden Pippin Apples.

Names of Plants.—**H. J. B.**—1, *Athyrium filix-femina gracile*; 2, *Asplenium lucidum*; 3, *Adiantum capillus-veneris*; 4, *Pteris serrulata*; 5, *Adiantum Wagneri decorum*. **T. S.**—*Escallonia illinita*. **Soursop.**—*Ipomoea bonariensis*. **W. H. M.**—1, *Camptosorus rhizophyllus*; 2, *Asplenium Trichomanes anceps*. **Devon.**—We cannot name from leaves only. **Villager.**—*Euonymus europæus*. **R. J.**—1, *Abutilon vexillarium*; 2, Cannot name without flowers; 3, *Witsenia corymbosa*; 4, *Echites picta*. **E. L., Bournemouth.**—*Polygonum Persicaria*, a hardy annual. **M. N.**—Probably a species of *Convolvulus*. **Anon.**—1, *Actæa rubra*; 2, *Jasminum officinale*, var. *B. S. O.*—*Cotoneaster Simonsi*. **C. F. Naas.**—1, *Gilia liniflora*; 2, *Salpiglossis sinuata*. **F. R. J.**—1, *Polygonum amplexicaule*; 2, *Impatiens glandulifera*. **C. B. K.**—1, *Selaginella Mertensii*; 2 and 3, *S. Kraussiana*; 4, *S. Kraussiana variegata*; 5, *Sedum ochroleucum*; 6, Next week. **J. M.**—1, *Senecio sarracenicus*; 2, *Rudbeckia speciosa*; 3, *Anemone japonica*. **J. W.**—1, *Pereskia aculeata*; 2, *Bupleurum fruticosum*; 3, *Pyrethrum uliginosum*; 5, *Helianthus multiflorus* fl. pl.—**Florist.**—The flowers you send cannot be named except by a specialist. —**Amateur.**—1, *Lygodium scandens*; 2, *Adiantum tenerum*; 3, *Asplenium bulbiferum*; 4, *Lindsæa cultrata*.

Questions.

Rabbits and Lawson's Cypress.—As rabbits do not touch this kind of Conifer here, do they show their aversion to it in other places.—**R.**

Cracked Pears.—I send you a specimen of Pears taken from two trees which are growing in close proximity one to the other. There are only about half-a-dozen good fruit on them, the remainder being all cracked and as hard as those sent. On another tree a few yards from these the bulk of the fruit is good and a few only are cracked. The trees are espaliers, and stand about four or five yards from a pond; they are quite open to the south. Can any of your readers oblige me with any information as to the cause, and suggest a remedy?—**RYDAL MOUNT.**

Coarse-growing Grasses in Ponds.—I have a pond about three quarters of an acre in extent, which, having been neglected for two or three years, has become quite filled with a coarse Grass which grows so thickly that the water is scarcely visible and other aquatic plants are smothered. Can any of your readers suggest a mode of eradicating this Grass.—**WATER LILY.**

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

TREE PLANTING A PROFITABLE INVESTMENT.

IN confirmation of the truth of the remarks upon this subject which appeared in the last number of *THE GARDEN* (p. 342) I will submit for the consideration of landed proprietors and others interested in the subject a few facts and figures, the truth of which may be verified by an examination of the wood books of this estate—Surrenden-Dering. If ever there was a time in the country's history when strong inducements to plant trees were offered to the owners of suitable lands it is the present, when, owing to a succession of bad harvests, and to other causes beyond our control, much of the heavy land of the country is likely to go altogether out of cultivation or be thrown upon the hands of its owners. The employment of a portion of the agricultural population of the country during the coming winter in reclaiming, draining, and planting such land would confer an immediate benefit upon the labourers themselves, for whom employment will be scarce.

These woodlands are situated partly upon hills of Kentish ragstone, where the soil is friable and of fair quality, and where the plantations partake of the nature of "lews," as they are called in Kent, or shelter belts of various widths. Most of these narrow strips were originally planted to shelter the homesteads and the Hop gardens, as well as the arable and pasture lands, from the west and north-west winds, which often do considerable damage; but the greater part of the woodlands are upon the Wealden clay, which, during a wet season, is one of the heaviest and most unworkable in the kingdom.

Nearly all the woods are worked in rotation, either as pure coppice, or as coppice with standards, and cut at periods varying from nine to thirteen years, according to the soil and the kind of wood grown. Some of them may be described as natural woods, of which the value has been considerably enhanced by cutting good open ditches at intervals proportioned to the slope of the ground and the retentiveness of the soil, and by planting up vacant spaces after every fall. Others are regular plantations of Ash, Sweet Chestnut, Birch, Willow, &c., either distinct or in combination, which are laid out in sections or beds separated by good and deep open ditches. The older woods consist largely of Oak, Hornbeam, Birch, Willow, and Hazel. Every year a considerable acreage is laid out into "cesses," which are again sub-divided into "cants," containing from three to six roods each, and sold by public auction early in November. One advantage of small lots is that many of them are bought by the agricultural labourers, who from small beginnings are now able to pay down in the sale room their deposits, amounting in some cases to from £50 to £60 per man. These purchasers work up their own lots, selling the produce to the Hop-growers, lime-burners, and cottagers. Half the purchase money is paid down at the time of sale, and for the other half they obtain credit for a year, giving proper security if required. In the mixed coppices about thirty tillars per acre are reserved by the proprietor, as well as the whole of the standards. The latter are afterwards thinned out during the winter, or—if consisting of Oak—as soon as the bark will run in the spring, by the proprietor's own men, and then carted into convenient lots and sold by auction in June or July. Much of the land upon which these plantations are made was not worth an agricultural rent of more than 7s. per acre.

As a preparation for planting, the land was ploughed to a depth of 10 in. or 12 in. at a cost of about £2 per acre. Some parts were trenched to a depth of 16 in. or 18 in., at a cost of £5 or £6 per acre. With our present advantages of steam cultivation we can considerably lessen the cost of preparation, which of late years reached as much as from £8 to £9 per acre. The first of these plantations was made about forty-five years ago, and at the present time they show no signs of diminishing in annual value, the Ash, Chestnut, and other stools being still vigorous.

The original total cost per acre upon small plantations was unnecessarily high, being for enclosing, ploughing, and afterwards trenching, draining, plants and planting, cutting back the trees at the end of the second year, and afterwards digging well between them, as much as £15 per acre.

For the sales made in 1865, when the prices obtained for produce in Hop-poles, &c., were not nearly as high as they have since been, the books show the following returns: For the Weald or low hill woods of twelve years' growth, £40 8s. per acre, including the thinnings of standards, a certain proportion of which come down every

fall. Upon the same soil, coppice or underwood only, £25 per acre for twelve years' growth. The sales of the woods upon the Hill realised £41 7s. per acre for eleven years' growth. The income from the Uplands is probably not more under wood than they would realise as arable lands; but the benefits these belts and small plantations confer upon adjoining lands must not be lost sight of in estimating their value as part of the estate.

Much higher prices than the above have been made of small lots. In 1865 one of these made £57 per acre for ten years' growth, and 100 square perches sold for £45. Another lot of 100 square perches which sold for £28 2s. 6d., turned out the following materials which sold at the annexed prices:—

300 10-ft. Hop-poles at 6s. per hundred	...	...	...	£0 18 0
400 12-ft. " 12s. "	...	...	...	2 8 0
800 14-ft. " 23s. "	...	...	...	9 4 0
800 16-ft. " 30s. "	...	...	...	12 0 0
500 25-ft. use-poles " 33s. "	...	...	...	8 15 0
50 Household faggots at 20s. "	...	...	...	0 10 0
400 Brush faggots, adapted for lime or brick burning at 5s. per hundred	...	...	...	1 0 0
Total				£34 15 0

The expenses of falling and working up this lot were £2 10s., thus leaving a clear profit to the purchaser of £4 2s. 6d.

To ensure profitable plantations the first outlay upon these heavy lands is considerable; but upon hillsides, heaths, and such situations as are generally chosen for the planter's operations, where small plants are notched in or larger ones are pitted, and no draining or previous cultivation is required beyond a preliminary clearance which often pays for the expenditure, the outlay is generally confined to the purchase of trees and the expenses of notching-in or pitting and planting. An active man and a boy may plant by the system of notching from 1,000 to 1,300 plants per day. Upon our heaviest soils we pay 1s. per 100 for holes 10 in. deep by 18 in. across; and supposing the plants to be put in 4 ft. apart or 2722 to the acre, the holing will cost £1 7s. 3d. Plants from 18 in. to 24 in. in length may be bought for about £2 per 1000, or £5 8s. 6d. per acre. Add to this the expenses of planting—say, 12s. per acre—and we get a total of £7 7s. 9d. per acre. Where smaller plants can be notched in, the total expense need not exceed 80s. per acre.

To show the advantages of regular plantations over the natural growth from the old and neglected stools, I might quote figures before me which prove conclusively that in years when the former have realised £25 per acre the latter have made only £14 6s. for the same number of year's growth.

Upon nearly every farm and certainly upon every estate in the kingdom, there are neglected pieces of land which would pay well for planting with trees, while they are almost useless for other purposes, such as odd corners of fields, roadsides, river margins, rocky slopes, barren heaths, and low-lying swampy grounds. Upon some of the latter the roots of Poplars have been found to penetrate deep enough to open up the substratum and permit the waters to drain off. All that is required at the present time to confer an inestimable boon upon both the agricultural population and the landed proprietors is a little enterprise, judgment in selecting trees and laying out land, and care in the planting. Thus we may tide over a time of trial and great depression and confer upon the country generally an advantage which will become more apparent every succeeding year.

A. J. BURROWS.

THE OLD OAKS AT THORESBY.

THESE, the remnants of "Merrie Sherwood," constitute one of the features of greatest interest at Thoresby. They may be counted by thousands—trees perhaps 1200 years old, of wonderfully large girth, some of them stag-headed with great excrescences here and there on their massive trunks; but some of them symmetrical with spreading heads and limbs of enormous size. One of the largest of them is the "Major Oak," still a magnificent tree, of which a representation will be found in *THE GARDEN* (Vol. IX, p. 492). Its trunk, which is hollow and capable of holding some ten or twelve people, measures, at 2 ft. above the base, 32 ft. in circumference, and at 4 ft. from the ground 29 ft. This tree is annually visited by hundreds of people from all parts of the country and especially by artists, who are fond of sketching it as well as other denizens of this ancient forest. Of this tree there is a wood carving by Robinson, of Newcastle, over the fire-place in the library at Thoresby with red and fallow deer browsing amongst the Fern beneath its branches, and below it figures of Robin Hood and Little John. Next perhaps in size is an Oak called the "Simon Foster," a tree little inferior to the "Major," and one equally an object of

admiration. It measures, at 2 ft. from the ground, 31 ft. 6 in., and at 4 ft. up, 25 ft. Then there is the Shambles Oak also in this district, a tree so named from its hollow trunk having been made a butcher's shop, so to speak, in which were hung up and "dressed" the sheep and deer killed in the neighbouring forest by those who, in times past, set property rights at defiance. This, when a "hale green tree," must have been one of enormous size, but one half of it is now gone—in short, it is a mere shell, some boys having set it on fire some four or five years ago while burning a wasp's nest in its centre. One more remarkable tree is the "Parliament Oak," so named because under its once spreading branches King John, who had a palace not far off, held a parliament. This is now a complete wreck, the few leafy branches of which its head consists being supported on props. Nor must I forget while in this part of the country the "Greendale Oak" at Welbeck, a tree with an opening in its trunk through which a coach might be driven. This aperture measures rather more than 6 ft. wide, therefore some idea of the size of the trunk may be formed. Few of these old Oaks are, however, now to be found at Welbeck, and therefore those who wish to see these storm-tossed veterans of ancient Sherwood must visit Thoresby, where they cover hundreds of acres and where, thanks to the liberality of Lord Manvers, they are as open to all who care to see them as "Burnham Beeches." Mr. Jamieson, Lord Manvers' forester, informed me that few, if any, of these old Oaks are wholly sound although the young wood produced by them is surprising, and that accidents have even occurred from the sudden breakage of some of their huge and high poised limbs. Young plantations of fine Oaks, properly thinned and otherwise well cared for, are, however, plentifully dispersed over the Thoresby estate, and these will, at no very distant date, take the place of the old trees now showing in most cases unmistakably the evil effects of that fell destroyer—Time. M.

EFFECTIVE COMBINATIONS IN PLANTING.

A WRITER of the last generation draws attention to the charming contrast furnished by the near association of the deep green foliage of the Laurel with the graceful, drooping, waving branches of the silver-barked Birch, the weeping variety especially; rising out of a ground-work of Laurels, Rhododendrons, or other large-leaved evergreens, they always produce a striking effect, especially in winter. But the evergreen undergrowth should not be permitted to grow so tall as to hide the trunks of the trees, as when this happens much of the intended effect is lost, and the undergrowth soon becomes naked at the bottom and unsightly. The best way to manage low underwood of this fast-growing character is to prune it annually—not hard in, but to cut back runaway shoots, as these are the leaders that carry directly upward the strength of the plants, which results in a wasted base. With a little attention every winter or early in spring the undergrowth may be kept in good condition, and always look well, forming a beautiful frame to the tree picture, and which may be arranged either to harmonise or contrast by a careful selection of the materials employed. I have often thought that, in the arrangement of new plantations, hardly sufficient importance is attached to their winter aspects and effect. And yet it is in winter, when the skies are often covered with leaden clouds, and when out-of-door aspects are of a gloomy character, that the mind is peculiarly open to receive pleasing impressions from the contemplation of tree vegetation, because at that season there is so little else to interest and arouse attention. It is true that, in most instances, the grounds near the house are generally well furnished with evergreens, not only with the view of securing shelter, but also of making a pleasant picturesqueness; and I think, so far as both objects are concerned, their attainment is not incompatible with a judicious use of deciduous trees and shrubs. We all know how the force of the fiercest wind is broken by a thick Thorn or Beech hedge in winter, when the leaves have mostly fallen; the cold current is grasped in the thick folds of the hedge, and dispersed on the other side in the gentlest zephyrs. In fact, no evergreen can grapple with a strong wind in the same manner as a stout Thorn fence does, so far as concerns calming down and mitigating its injurious force. Then, again, in the annual change of dress, deciduous trees and shrubs have a decided advantage over evergreens, though I am not forgetting the beautiful tints assumed by the young growths of the Box and Yew trees, and many others of a similar character, in spring; but they will not compare with the ever-varying foliage of trees of a deciduous habit. There are numbers of large old Elms of various kinds near where I am writing, and it is so pleasant to note the daily change in spring and autumn, when they are putting on and shedding their leaves. But when they are about half dressed in spring is the time when the effect seems most pleasing, as then their huge limbs can be traced through the cloud of greenish, golden-tinted drapery: and when the sun shines upon them the whole looks like a

fairy scene. It is, therefore, very desirable to plant deciduous subjects freely among the evergreens, both in distinct groups and also in the form of single specimens. But I think the best effect is produced by groups of deciduous trees or shrubs when springing out of a base of evergreens, as then, in winter, the whole surface is covered; there is no bare earth visible, and the whole has a thoroughly finished appearance.

Let me give an illustration or two by way of explanation. The *Ailanthus glandulosa* is a very effective shrub in summer, if not too much crowded, so that its long pinnate leaves can have room for development; but when denuded of its foliage in winter, it puts one in mind of a room without furniture; there is little or nothing for the eye to rest upon. But plant underneath these bare stems some dwarf, close-growing, evergreen shrubs, and a combination is created that is always very pleasing. Rosemary is sometimes used for this purpose, and a very charming effect it has, either when close under the eye or at a distance from the point of view. Lilacs, Syringas, and the Guelder Rose always look well springing out of a bed of evergreens; as do also Thorns and Laburnums. The common Savin, in a low dark mass, with taller, lighter foliage plants growing out of it, has a very striking effect, and such contrasts always arrest attention. Hollies on a base of St. John's-wort (*Hypericum calycinum*) have a finished look, whether the Hollies be large or small, as the ground is all furnished, and so the arrangement does not lack completeness, and it shortens the period one has to wait for the plants to fill up and hide the bare earth. But this *Hypericum* is rather a strong-rooting plant, and requires to be kept within bounds, which can be accomplished in most soils by mowing it off every spring. This plan of filling-up between specimen shrubs or trees with a dwarf contrasting plant, does away with the necessity of planting many masses, except a few on the windward side. There is a good deal of protective power in low, close-growing plants; they stop the rush of cold currents near the surface of the ground, and shelter and protect the collar of the delicate plant, which is the most vital part. I am acquainted with a garden where there is a sloping bank forming a foreground to a group of deciduous trees. It is planted with specimen shrubs of various kinds, each having space sufficient to show its true character; whilst among the shrubs, completely covering all bare earth, is planted *Vinca major* or large *Periwinkle*. This bank always presents a tasteful finished appearance, which every year seems to increase in interest, as the plants assume their true characters. The *Periwinkles* are trimmed up in spring with the shears after they have completed their flowering, which is generally towards the end of April; the new growth breaks away directly, and the spaces between the shrubs are furnished with a delightful carpet, that has none of the formality of carpets generally, but a light free growth of a pleasing character. The thick growth effectually keeps down weeds, and conceals falling leaves and other debris of autumn and winter. E. H.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Trees and Shrubs in Vienna.—*Mandschurian Dimorphanthus* (*D. mandschuricus*).—This handsome broad pinnate-leaved shrub is very striking, and much resembles *Aralia spinosa*, but is decidedly hardier. It has a great advantage for the climate of this part of Austria. *Crataegus Crus-galli* is a tree which never looks better than in autumn, when laden with its scarlet fruits, resembling minute Apples. They help to break up the monotony at this time of the year, when gardens begin to be dull. A tree of *Paulownia imperialis*, over 40 ft. high and as much through, is bearing a mass of fruits.—L. KROPATSCH, *Laxenberg*.

Leycesteria formosa.—This old-fashioned flowering shrub is well worth a place in the most select collection. Its pendulous, Grape-like clusters of bright chocolate-coloured berries impart to it a very distinct and highly ornamental appearance. It produces an excellent effect when growing amongst evergreen and deciduous shrubs, and would also form an admirable subject for pot culture. Although it requires to attain several feet in height before it fully displays its decorative capabilities, it will at the same time flower in a dwarf state, and might therefore be utilised during the autumn and early winter months—a time when it is often found difficult to secure variety for conservatory decoration. It is, unfortunately, of a somewhat tender nature, and, when grown in open exposed localities is liable to be cut down in severe winters; and it is probably owing to this fact that this old inhabitant of our gardens is seldom seen in thoroughly good condition, and that its culture has become neglected. Its merits, however, entitle it to the consideration of planters, and render it worthy of some pains being taken to ensure it against injury from frost. A few evergreen boughs, or two or three old mats, would afford the necessary protection.—J. CORN HILL.

Portugal Laurel Hedges.—In a large nursery in this neighbourhood devoted to the culture of hardy plants, shelter hedges, composed of Portuguese Laurel, are extensively employed. On the north side the hedges are some 4 ft. to 5 ft. in height, and are flanked at intervals by others, which slope gradually to the ground, thus enclosing spaces effectually sheltered from cutting and rough winds, but which are at the same time open to the influence of the sun's rays. These sheltered spaces are used for planting out seedlings, rooted cuttings, or anything which may need some nursing, or would be benefited by protection in the earlier stages of growth. Sheltered spaces such as these are easily formed, and would be found extremely useful for many purposes, such as raising early salading, forwarding Strawberries, &c. Or were the enclosures made to face the north, they might be profitably utilised during the hot summer months for planting out Primroses, Violets, &c., or screening pot plants against the glare of a hot sun. The Portuguese Laurel would appear to be well adapted for this purpose, as it quickly forms a dense, impenetrable mass of foliage, impervious to the harsh drying winds, which often exercise a pernicious influence upon such plants as have not attained sufficient strength to withstand them.—J. CORNHILL.

The Size and Age of Trees.—In reference to this matter Mr. Vernon Heath writes to the *Times* as follows: May I appeal, through your columns, to those who write upon the size of trees to supplement their information, whenever it can be done, with that which is known of their age, because I venture to think that the majority of readers would be more impressed by the fact that a tree had lived several centuries than by knowing merely its girth and height in feet? This leads me once again to speak of some old friends of mine—Burnham Beeches. Who is there in this tree-loving country can tell us something that can be depended upon as to their age? I have sought long and diligently to discover some historical account of them, but have found only that which is vague, legendary, and unsatisfactory. Of their origin there is nothing whatever to be learnt. Who, then, of those who have made tree life their study, will volunteer information upon a subject which, from enquiries I constantly receive, will, I am sure, be interesting to a number of your readers?

THE INDOOR GARDEN.

DECORATIVE PLANTS OF DIFFERENT HABITS.

It is generally acknowledged that the best effect obtainable with any assemblage of plants, either in the open air or indoors, is most satisfactorily secured by having as much diversity as possible, not only in the form, colour, and general character of the flowers which they produce, but still more so in the natural habit of the plants themselves. I repeat natural habit, for a great deal is continuously said and written about the formal appearance of many pot-grown subjects; and objection is taken to their broad, bushy rounded outline, which is charged to a mistake in the training, when all that has been done in that direction has only given them a symmetry of outline such as they would have had if growing in their native habitats with sufficient space and opportunity for full development. I am not taking into account the distortion sometimes practised in plant training, of which no one can approve, but the tying that is necessary to fully open out and sufficiently separate the branches of any specimen, large or small, to admit of the requisite air and light getting to the interior of the plant, for the double purpose of keeping the shoots from being drawn up, and also with a view to allow enough room for the flowers to be seen distinctly. This much, plants that are naturally of a bushy habit, require, whether the specimens are large or small, for it is well to recollect that even under the best possible system of cultivation in the best constructed light houses, the branches of plants in general have a much greater determination to become elongated than when grown uncrowded in the open air. For a very long time after glass erections were devised for the cultivation of plants too tender for growing out-of-doors, they were little better than receptacles for weak, branchless starvelings, the result of overcrowding and a manifest absence of perception as to their requirements. Of this state of matters we have abundant evidence, as, even within the last thirty years, the above description would hold good with the greater number of plant houses throughout the country. When exhibitions of plants in a better developed condition came into fashion there was a disposition to adopt a different form in the subjects grown—the opposite of the tall spare examples that had so long done duty in greenhouses and conservatories, the result being that most of the plants now-a-days have a bush-like shape, with comparatively little to relieve the even

monotonous surface. Frequently, indeed, do we see whole houses in which everything is rejected that cannot be made to conform to such a form of growth. The consequence is that although the plants, from a more liberal course of treatment, are capable of producing a much greater quantity of flowers, still the monotony in form is objectionable. In spring we find stages full of Primulas, Cinerarias, Cytisuses, Azaleas, zonal Pelargoniums, forced shrubs, and bulbs, the tallest furthest from the eye, with the smallest in front, coming down in a gradual even descent. These are succeeded again by Fuchsias, self and fancy Pelargoniums, Calceolarias, and others of a like character and habit. An attempt to relieve such is frequently made by growing some or other of the preceding plants in the form of standards, the outcome of which is that the broad bushy heads are removed above the pots, breaking the otherwise level surface, but nothing more; whereas if subjects of a totally different character had been chosen for intermixture the arrangement would have been much more satisfactory.

This objectionable state of affairs does not so often exist in warm stoves and conservatories, where the generally cultivated fine-leaved plants are usually found, as it does in the cooler greenhouses to which I am more particularly alluding, and from which even such plants as the old-fashioned *Humea elegans* are almost banished, although its tall erect stem, furnished with graceful drooping branches, renders it so fitting a subject for giving the desired contrast to the other compact-habited plants. Yet it is by no means to want of materials in the shape of plants of a character somewhat similar to the *Humea* to which the absence of artistic effect in the furnishing of greenhouses can be attributed, but a too common absence of perception that, however well grown, according to their kind, the subjects employed may be, a tasteful and pleasing arrangement is impossible without sufficient diversity in the form of the plants forming the whole. It is in this matter of choosing the plants best calculated for effective combination in grouping that the Continental gardeners excel, as those who have had an opportunity of seeing their exhibitions can testify, though the plants in themselves are far from showing the skill in cultivation usually met with at similar gatherings at home. We are often led away too far by the appearance of plants individually, their rarity, or their being new, losing sight of the important fact that fitness for the purpose required is indispensable for any assemblage of plants, as much in the home grouping as in an exhibition. Amongst flowering subjects, such plants as *Habrothamnus elegans*, *Neriums*, *Erythrinas*, *Campanula pyramidalis*, *Clanthus*, *Abutilons*, *Hedychiums*, *Acacias*, *Lilies*, and others of a like character, confined to single stems, or mostly so, with the number of handsome-leaved plants, like the less tender kinds of *Dracenas*, *Grevilleas*, *Lomatias*, *Rhopals*, *Yuccas*, *Aralias*, and *Cannas*, each grown to one stem; the green and variegated forms of *Phormium tenax*, kept to single crowns; the useful *Humea elegans*, of which a supply can so easily be maintained by sowing a little seed each year—these and others that will occur to the cultivator, if fairly managed, will afford all the year round abundant material wherewith to furnish a greenhouse, large or small, in a way to make the whole arrangement such as to satisfy those who look for something beyond the plants individually, without materially interfering with the general well-being of the lower-growing portion, which, as a matter of course, will exist in greater numbers than the taller plants.

Most of the above, when they get too tall or deficient of leaves, will bear heading down, and thus can be renewed; and the majority with the aid of liquid stimulants, can be kept in a healthy condition without the use of large pots, and admit of being further employed for hall or room decoration when occasion requires.

T. BAINES.

BOUVARDIAS ON THE COOL SYSTEM.

I SEE (p. 352) that Mr. Baines still advocates a brisk heat, and therefore expensive treatment for these lovely winter-flowering plants. We are better pleased with our *Bouvardia* plants this year than we have been for many seasons; indeed, we never had them in better condition. Owing to the season being so unfavorable, they were not planted out this summer, but were grown on in pots in a cool house and in frames. About a month ago some of the plants were removed into a briskly-heated pit, and others were placed in a Vinery, from which all the fruit had been cut, and which is now freely ventilated night and day. Those in the Vinery are looking equally well, and producing as many flowers as those in the heated pit; and judging from past experience, those under cool treatment will do equally well as those in heat. My daily experience of *Bouvardias* is that their blooming does not depend so much on the heat which they receive as upon good culture. Well grown plants will bloom freely and well for the greater part of the winter if kept clean, and in an ordinary greenhouse temperature, say from 45° to 55°. Perhaps many amateurs grow the seplants fairly well in frames in summer

and the greenhouse in winter; and to such as have not already tried them, I would say begin at once. Do not let the want of brisk heat deter you. Plants which will make your greenhouses gay, and supply you with cut flowers such as could not possibly be surpassed, will be your reward; and the same treatment which causes *Cinerarias* to grow and flower freely will be found to suit *Bouvardias* admirably. I am glad to see that Mr. Gilbert takes the most useful and generally applicable way of treating his *Bouvardias*, and places them "in the greenhouse to flower."

CAMBRIAN.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Training and Tying Plants.—If "Consistent," who criticises what I have had to say on this subject (p. 304), cannot see the difference between the training of *Chrysanthemums* or *Pelargoniums* in the objectionable Mushroom-like form we so often see them, from 3 ft. to 5 ft. across, and not more than 10 in. to 1 ft. high, as compared with the *Heaths*, *Ixoras*, and *Azaleas* tied as nearly to the shape they grow in naturally as their safe carriage to and from the places where they are exhibited admits, then anything I can say in the matter will be useless so far as he is concerned. "Consistent" either ignores or loses sight of what I have always urged in respect to the training of plants for exhibition, for it is to these he particularly alludes, and not to such as are wanted for ordinary decorative purposes, which, as I have pointed out, need no more tying than will give them the requisite support to keep them in something like the form which they naturally assume. So far as my own practise went, when an exhibitor, I may state that I never tied my specimens to the close even surface that many growers, both before and since, have done; and not unfrequently I have had them found fault with by the advocates of formal tying. "Consistent" would be more in conformity with the signature he has chosen had he borne in mind that nearly all our flowering plants (climbers excepted), which are usually used for exhibition purposes, grow naturally as round and formal as a *Mezereon* bush or *Rhododendron*, and the form of training I always adopted, and continue to recommend, has been so much and no more than would keep exhibition plants as near the shape in which they grow naturally as possible—very different from the way in which *Chrysanthemums* and *Pelargoniums* are usually treated as compared with their natural habit of growth.—T. BAINES.

Chinese Primulas in a Cold Frame (p. 337).—It would be unwise to trust Chinese Primulas to the doubtful protection of a cold frame all the winter, especially through such a winter as the last one, as there were periods of frost so severe for three weeks at a stretch, when no daylight could be admitted, and it is easy to imagine what such plants would be like after such confinement; besides, only the thickest of covering could keep severe frost from plants in a cold frame. But there is even a more forcible reason why they should not be wintered in a cold frame. *Primula sinensis* is peculiarly a winter-blooming plant, and to shut it up in a cold frame from November till March would be a great mistake, as in such a place it cannot be seen to advantage if in bloom, as if it does flower it would soon lose all its bloom through damp, to the effects of which it is most susceptible. The best—and, indeed, only suitable—place for Chinese Primulas through the winter is a greenhouse or conservatory, where there is a genial temperature and plenty of light and air. To immerse them in a cold frame all the winter is to consign their beauties to a dungeon. Cold frames, as the designation implies, should be used only for plants that require in summer a cool temperature, and in winter for those that are quite hardy, or not being entirely hardy are somewhat at rest. Even in mild winters, when there is little frost, damp is almost as dangerous to plants as severe weather, especially as most frames are placed or built on the ground, so that the damp of the soil is attracted upward. Those who have no other glass but a cold frame will be well advised not to trust too much tender material to its protection; but hardy plants, such as bulbs, Pansies, Auriculas, Alpine Primulas, Pinks, Carnations, Polyanthus, and others may be grown in it with the greatest safety, and will cause no anxiety during the hardest weather.—A. D.

Vallota eximia.—This fine variety of *V. purpurea* deserves to be more extensively cultivated than it is, for a more beautiful autumn and winter-flowering bulb is not to be found. Its colour—bright scarlet—renders it a most striking object, both for conservatory and for room decoration, while its cultivation is so simple that any one can grow it. Let some good-sized bulbs be procured now and kept gently growing on through the winter in any glasshouse in a temperature of about 55°. Keep them moderately watered, and set them in a light position, and they will, by next autumn, have made fine large flowering roots; then keep them rather dry for a time, but not sufficiently so to in any way injure the foliage.

Then place a few bulbs at a time in a gentle warmth, and fine large trusses of exquisite scarlet flowers will be the result. They will succeed well in 5-in. or 6-in. pots, and they do not require frequent repotting. The soil best suited to them is good fibry peat and loam in equal proportions, and plenty of silver sand and good drainage. This plant succeeds admirably in the window of a warm light sitting-room, where it cannot fail to be admired by all who are fond of flowers. *Vallotas* are very easily propagated by means of the small bulbs which form freely round the base of the parent roots.—HENRY BAILEY.

Hints Respecting Cyclamens.—Cyclamens still are so generally mismanaged by amateurs that a few hints respecting them may be of use to some who have hitherto not succeeded with their culture. The very first thing to be done is to secure seed of a really good strain; the best way is to purchase plants in flower of the best varieties, and save one's own seed. A visit to say such a collection as that grown by Mr. H. B. Smith, of Ealing, would enable the would-be grower to procure the best strain, and so avoid the inevitable disappointment that attends the growth from inferior seed. It is best to place the plants in their separate colours on a shelf near the glass, and on bright days the pollen can be distributed with a camel's hair brush, which will cause the flowers to set their seed freely. As the pods ripen let the seed be carefully gathered and dried. This is a very good time to sow the seeds, which should be put in pans slightly covered; keep them moderately moist, and place them in a brisk heat. When the seedlings are large enough to handle, prick them off, and as soon as possible pot them into small thumb pots. Shift again into 3-in. pots, and as soon as these are filled with roots move them into their (for this season) blooming pots, viz., 5-in. ones. The best soil for them is good loam and peat, plenty of silver sand, and free drainage. They require to be kept growing freely always in a genial warmth; and, most important of all, they must be kept thoroughly clear of insects. I do not think Cyclamens ever recover from an attack of green fly if neglected, hence so many failures. They also require great attention as regards watering; never allow them to become dry. These few simple instructions followed, will, I am sure, be productive of good results.—H. BAILEY.

The Hail Storm Relief Fund.—It has been decided to close this fund on Saturday, November the 2nd, and it is the desire of the committee that any subscriptions not yet sent in may be remitted without delay. At a meeting of the committee held on the 14th inst., the sum of £800 was voted for relief purposes on the recommendation of the investigation committees. When these were appointed, the executive committee, finding that the subscriptions announced represented but a fifth part of the aggregate amount sent in by sufferers, instructed the investigation committees to confine their labours to ascertaining the actual amount of glass broken, specially recommending the most deserving and necessitous cases. These returns having been made, were duly considered in committee, and at a meeting on the 18th inst., the sum of £800 was voted. The aggregate quantity of broken glass was found to be very large, and as the amount at the disposal of the committee would not admit of relief being administered according to a uniform scale, it was resolved to divide the applicants into three classes, according to their needs, the most necessitous to receive 3d. per ft., the next 2d. per ft., and the least needy, 1d. per ft.. Already all applicants classed as necessitous have been relieved, and the remainder of the sum voted will shortly be awarded. The sum remaining over at the close of the fund will be further distributed pro rata among the sufferers, as in the case of the Hail Storm Fund of 1876. A balance sheet will then be struck, and the committee will bring its labours to a close.

Substitutes for Potatoes.—We are threatened with something like a Potato famine, and those who remember the similar disaster in 1846 do not need to be told how grave is now the prospect, with a vastly increased population, and a state of depression in trade which signifies on the part of the masses a great difficulty in providing even the commonest and cheapest necessities of life. Many and well-intentioned are the suggestions which are being made with the view of providing substitutes for the Potato. The French *haricots blancs* or *flageolets*, Lentils, Rice, Maize, and Oatmeal are the substances which are brought most prominently forward as being fit to replace the favourite tuber. In one respect—the quantity of nitrogen which they contain—they all, but especially the leguminous examples, greatly surpass the Potato as an economical nutriment. But, unfortunately, they are all deficient in antiscorbutic elements. Under a diet of these substances, either alone or with the trifling amount of fresh animal food which is all that tens of thousands of persons can obtain, scurvy would be as rife as it was in Ireland and North Britain in 1846–47. Nevertheless all these foods are very valuable, and it only needs that the particular point in which they fail should be recognised and supplemented. If this be not done disease must ensue, and the nutriment fall into disfavour. Any of these sub-

stances may be used with advantage where either an abundance of milk forms part of the dietary, or the antiscorbutic element can be furnished by fresh green vegetables, Onions, or the juice of Oranges or Lemons.—*Lancet*.

THE FLOWER GARDEN.

GENTIANA AFFINIS.

THE Gentians comprise some of our most brilliant hardy flowering plants, the majority of which are natives of Europe. There are but few that have been derived from the Western Hemisphere, though



Gentiana affinis (flowers blue).

in point of beauty of colour there are many, especially in South America, that quite surpass the cultivated kinds. *G. affinis*, which is represented in the accompanying woodcut, is a native of California, where it inhabits very high elevations on the north-eastern parts of Sierra Nevada and other neighbouring localities. It grows from 1 ft. to 2 ft. high; the leafy flower stems bear a profusion of flowers, which are about 1 in. long, and of an intense blue colour. It has flowered at Tottenham this year in Mr. Ware's nursery, from which the specimens our illustration was prepared from were supplied. Another Californian Gentian, that has been introduced, is *G. Newberryi*, a very dwarf growing kind, with pale blue and greenish dotted flowers. Some of the other kinds found there are

very beautiful, and would be desirable acquisitions if introduced. Amongst these are *G. acuta*, *simplex*, *serrata*, *calycosa*, *setigera*, and *sceptrum*, all with flowers of a more or less intense blue colour, and which would doubtless all thrive under the conditions generally accorded to Gentians. W. G.

TULIPS OF THE FLORISTS' CLASS.

How many living within the circle of the metropolitan district will, next November, plant their beds of Tulips? Alas, we fear the answer will be—not one. Tulip devotees about London appear to have died out. The area of the cultivation of the Show Tulip has become much circumscribed in the south of late, but perhaps, ere long, a reaction will come and this showy flower be again grown as it was years ago. I have known an excellent Tulip soil made out of three parts fibrous loam, and two parts top spit from a kitchen garden quarter that had been well worked for many years. This last was employed to act as a slight stimulus, and, being of a light friable character, assisted to render the mixture open, and so ensure a free access of air to the mass. It was once remarked by an old florist that “the great secret of successful cultivation of all plants consists in subjecting the soil in which they are grown to atmospheric influence.” It was so in the case of the Tulip bed. Supposing the new bed to have been made up at some time towards the end of the summer, or the old bed turned thoroughly throughout, it was allowed to have one good soaking of rain, and afterwards protected from wet till after the bulbs were planted, which was generally done during the first or second weeks in November. I have assisted at this ceremonial; it was done in the most painstaking and careful manner in the days when collections of named Show Tulips of good quality were valuable.

A Tulip bed is always raised and enclosed with boards, or, in the case of permanent beds, with turf sides. These may be set down as averaging 6 in. in height. One of the best of the southern growers of Tulips thirty years ago recommended cultivators at the time of planting to rake the surface of the bed level with the top of the boards which enclosed the soil, and plant the Tulips on the surface, covering the outside rows about 3 in. and the middle 5 in., which rounded the outer surface of the bed sufficiently to throw off an immense quantity of water in winter, and so do away with the necessity of covering from heavy rains until the plants were 2 in. or 3 in. out of the ground, and the foliage begins to hold water. This practice was considered to be as essential to good cultivation as thorough under-draining and the employment of good sound loam free from wireworm. The mould should never be allowed to sink below the side-boards, as then the whole of the water runs into the bed instead of on the path, which should have a trifling inclination from the bed. Cases of failure have occurred with Tulips, generally in the experience of unskilful amateurs, and in all probability these results were traceable to a superabundance of water retained in the beds by side-boards, or from continually covering them against heavy rains in winter, which draws the plants up weakly and renders them incapable of encountering severe frost.

November 9th was the traditional day of the generally accepted month for planting. Some growers planted in October, doing this before the bulbs began to vegetate at the base, and on the principle that the planter was not so likely to injure the young fibres in the act of pressing the bulbs into the soil. The usual rule is to put some silver sand about the bulbs at the time of planting, and some growers add a little powdered charcoal also. Skilled growers sometimes add chemical substances; but they require to be used with great caution, and not without full knowledge. It not unfrequently happens that the bulbs first planted are the last to make their appearance, although they are generally the strongest plants when they do come. When the bulbs are planted as directed, they do not require much attention until they are well out of the ground, when they should be covered with garden mats every night the last thing, and not allowed to have any rain, excepting the weather is very hot and dry, until blooming time; if canvas is used for covering, care should be taken to keep the sides up on warm nights, or during warm rains, to prevent the plants from being drawn up weakly.

When the plants begin to make their appearance above ground, the mats are removed on all favourable days, and also nights, when the weather is sufficiently mild to dispense with the precaution; but it is well to err on the safe side, in case of uncertainty at such seasons; for if the bud in its embryo state should be injured by frost or blight, all prospect of a good bloom is destroyed. When March sets in, it is advantageous to stir the surface soil of the beds, and this should not be allowed to become crusted on the top. The infant bud is in danger of being damaged at this season of the year if rain be allowed to gather in the centre in the midst of the leaves, and if this becomes frozen, a withered and imperfect bloom will in all probability result. If the weather proves very dry at the end of April, a

slight watering can be given in the evening through the fine rose of a watering pot, doing it over the foliage; and directly after this is done the bed should be covered with mats. When taken off the following morning, the plants will be found to have increased in freshness and vigour.

When the plants come into flower efforts will have to be made to so shade and screen the blossoms as to have them in as fine a character as possible. Shading is absolutely necessary, not only to protect the flowers from the sun, but side screens are most useful to prevent the wind from doing harm to any of the gems in the bed. Side screens should always be securely fastened, in order to prevent the material employed from being blown against and whipping the flowers.

If the question were put, Where are named Tulips now to be obtained? our reply would have to be from the growers at Manchester, Derby, Stockport, Ashton-under-Lyne, &c. Even Mr. Turner's once famed collection of named varieties has, it is feared, been broken up. The following list includes varieties that are shown at the Tulip exhibitions at Manchester, and it may be assumed that they are obtainable:—Bizarres (feathered)—Demosthenes, George Hayward, Sir Joseph Paxton, Ashmole's Garibaldi, Battersby's Herald, Commander, Slater's Masterpiece, and Birtwhistle's Sulphur. Bizarres (flamed)—Sir Joseph Paxton, Hardy's Ajax, Storer's Dr. Hardy, Storer's Orion, Storer's Masterpiece, Polyphemus, George Hayward, and Hardy's Lord Delamere. Byblømens (feathered)—Headly's Adonis, Friar Tuck, Bessie, Mrs. Pickerell, Martin's 101, William Bentley, Mrs. Cooper, and David Jackson. Byblømens (flamed)—Hardy's Talisman, Duchess of Sutherland, Salvator Rosa, Hardy's Nimbus, Headly's Adonis, Bacchus, Lord Denman, and Constant. Roses (feathered)—Heroine, Kate Connor, Aglaia, Martin's Charmer, Martin's Mrs. Lomax, Annie, Industry, and Lea's Mrs. Lea. Roses (flamed)—Aglaia, Triomphe Royale, Slater's Kate Connor, Circe, Headly's Mrs. Headly, Martin's Annie Macgregor, Rose Celestial, and Mrs. Lomax.

It will be observed that the same variety is given as both feathered and flamed. It is the peculiarity of some varieties of the Tulip to come handsomely flamed on the sides and edges of the petals without the usual flame of colour running up the centre of the petal. But this, the definitions of the various sections, and other singular characteristics of this gorgeous flower need fuller explanation.

R. D.

HERBACEOUS PLANTS V. BEDDING PLANTS.

NEVER, perhaps, have these been seen in greater perfection than they have been during the present exceptionally wet summer and autumn, thus showing unmistakably how superior they are for general decorative purposes to ordinary bedding plants. The failure of these latter will do much to bring herbaceous plants to the fore again. Conspicuous just now are the *Anemone japonica* and its white variety *Honorine Joubert*, the latter a really charming plant, its flowers being as large as a crown piece, handsome in form, and very effective. Not only is this *Anemone* valuable in borders, but it is equally desirable for pot culture, and when placed in a cool greenhouse it is safe from winds, and lasts in bloom till a very late period. In order to grow either kind well, they require a deep rich soil and plenty of moisture while renewing their foliage, as otherwise they are subject to the attacks of red spider. The great point is starting them fairly at first, and then leaving them alone ever after, as old established clumps are always the strongest and best. Most kinds of herbaceous plants are greatly improved by being taken up now and then and divided, but not so these, as their nature is to form large roots low down, and it is from the young feeders on these they draw their supplies. In hot dry weather a mulching placed about them, and a soaking or two of liquid manure is of great assistance to them, as it enables them to push up their flower-spikes freely, and make fresh crowns around their base. Those who wish to begin with them in pots will find this a good time to lift any of the young side-shoots that spring up so freely from old plants. If these are dug out of the ground with care, and, after being potted, are kept close for a week or so in a cold moist frame, they will be found to have taken well hold of the soil, and in a condition to bear the air and exposure. Although perfectly hardy, when grown in pots it is always advisable to keep them plunged in a position secure from frost, as it should be borne in mind that a plant having its roots in such a small body of soil is very differently circumstanced to others in the open ground, where, deep-rooted as they there are, they cannot be injured. To obtain fine strong pot specimens requires some years of rich feeding, but so serviceable are they that they are worth more than the care and attention which their cultivation entails. *Rudbeckia Newmanii* is another flower that appears to bid defiance to wind and wet and holds its own against all conditions of weather. A clump here has been a mass of beauty for weeks past, and is so attractive as to arrest notice a long distance off, the blooms being of

a deep rich yellow, and the large disk perfectly black, thus affording a very striking contrast in colour. This *Rudbeckia* is not at all particular as to soil or situation, for it will grow almost anywhere, but flowers best in full sun, which, as it comes in rather late, is necessary to get it in perfect condition. Like most herbaceous subjects it admits of ready increase by division, which is best effected early in spring, as then it soon starts away and gets over the check. Another fine old plant that has been very conspicuous of late is the *Monarda didyma*, especially the scarlet variety, which is quite as bright and effective as the well-known *Salvia splendens*, which is held in so much esteem for the embellishment of greenhouses. Scarcely less noteworthy are the white and other forms of the same plant, which, when grown together, form handsome groups, the different shades helping to show each other off to the greatest advantage. Besides being well adapted for the back parts of borders, for which their height and size fit them, they are well suited for planting in semi-wild places where, when once established, their vigorous habit quite enables them to take care of themselves. To induce the *Monardas* to flower freely they should be planted where the soil is deep, loose, and open, and in exposed positions, so that they can have the full benefit of the sun, which not only makes them more free in blooming but preserves the heads from damping or being destroyed by wet that lodges in their close tufts of blossoms. One of the most persistent blooming herbaceous plants with which I am acquainted is *Phygellus capensis*, and yet good as it is one seldom meets with it in any garden. A grander subject, however, for the centre of a bed, to dot here and there as specimens on a lawn, or to grow in the back of a border, it is impossible to have, as not only is the foliage very attractive but it forms handsome bushes a yard high, each shoot being terminated with a large spike of flowers of a cinnamon colour, which, in form and general appearance partake of the character of those of the *Pentstemon*. Last winter, unfortunately, cut it about sadly, as it was slow in emerging from the ground, but like *Fuchsias* when in the open ground, the roots may be easily protected by having some non-conducting material thrown over the crown.

A plant which we have found exceedingly useful for cutting from is the *Geum coccineum flore-pleno*, which is a fine variety of the old-fashioned scarlet *Geum*, having much larger heads, the blooms being remarkably brilliant, and very enduring in water. Taking it altogether it is a very fine decorative subject, and one that should be in every border, where, if favoured with good soil, it will be found very free growing. Next perhaps in point of merit are the *Funkias*, the smaller growing kinds of which afford such a quantity of spikes of bloom that one may cut and come again, and, besides helping to fill the flower basket, they dress vases well, in which they are very showy and serviceable amongst others. In borders they are almost worth growing for the beauty of their foliage alone, so handsome and ornamental is it, its outline, rich marking, and noble aspect rendering it exceedingly attractive. For earlier blooming, the handsome *Spiraea palmata* should not be forgotten, as unquestionably that is one of the very finest perennials in existence, sending up, as it does, large panicles of lovely violet-rose coloured blooms, which when in perfection are a real treat to look on. Although this lovely *Spiraea* will grow almost anywhere, a shady moist situation suits it best, as there it soon attains great strength and size, and lasts much longer in beauty. One more very desirable plant I would just notice, the good old-fashioned *Dictamnus Fraxinella*, which not only yields up magnificent spikes of curious looking flowers, but is remarkably fragrant. There is also a white variety equally deserving of cultivation, and although they both used to be somewhat common in good collections they are now seldom met with. Better plants than the *Dictamnus* for shrubby borders cannot be, as, once planted, there is no fear of losing them, for so hardy and strong are they that they will take care of themselves.

S. D.

Mignonette Seed.—In common with many other hardy annuals, *Mignonette* has done badly during the past summer, and the seed crop will be but a small one. I have had great difficulty in getting plants from seed sown in the open ground, as, owing to the lateness of the spring and the coldness of the soil, the seed germinated badly; and of that which grew the young plants moved so slowly that they will produce but little seed in time to ripen. The best plants have resulted from those raised under glass, and planted out into the open ground when strong. In good seasons such plants of some of the large growing kinds will cover nearly three square feet, and bloom most abundantly up to the end of the autumn. Seed sown in September will yield good pot plants for the greenhouse in early spring; and seed sown in March, in small pots, make splendid plants to turn out for summer bedding. As next year seed will certainly be scarce and dear, it will be most wise to sow the seed as thus advised, none the less for the reason that it may have

poor germinating powers, as this is such a bad ripening season. As evidence of the probable scarcity of seed, I may mention that a large grower had such a failure of several acres that he was obliged to plough it up, and with what small quantity he has grown he hopes to make 5s. per lb. of the seed, instead of only 1s. per lb., the contract price with the firm for which he was growing the ploughed-up stock. In sowing seed next spring purchasers will have to be guided very much by its colour, because if white, or nearly so, it will never germinate; but if brown, it may be regarded as sound, if not too old. There are several kinds of recent selection, of which the best without doubt is Parson's Giant White, as white Mignonettes are much the best. Miles' Spiral is red, and produces long spikes; whilst the Diamond is a selection having very pointed spikes. Mignonette is with great difficulty kept true if other kinds are grown near it.—A. D.

SEDUM TRIFIDUM.

An addition to the cultivated hardy Stonecrops is by no means a common occurrence, and more especially one which has flowers suffi-



Sedum trifidum (natural size); flowers rosy-pink.

ciently showy as to justify its being considered a garden plant. The annexed engraving represents a pretty species which is a common plant in the temperate parts of the Himalayas at an elevation from 6,000 to 12,000 ft. It is a dwarf-growing hardy perennial, with slender branches and crowded tufts of coarsely-toothed leaves. The flowers are of a deep rosy pink, very similar to those of the well-known *S. spurium*, or more correctly *S. stoloniferum*. Like the last-named species this Stonecrop makes a capital plant for growing on a rockery or a similar place, and continues for a long time in flower. Other low-growing kinds, well adapted for the purpose, are *S. oppositifolium*, with flowers of a pale pink; *S. Anacampseros*, with livid purple blossoms; *S. Ewersi*, with dense clusters of pink flowers; and *S. pulchellum*, a beautiful American species with forking clusters of rosy-lilac flowers. Our woodcut was prepared from plants in the Royal Horticultural Society's garden at Chiswick, which were presented by Mr. Elwes, who received the seeds from Northern India.

W. G.

Pyrethrum Golden Feather.—There is in cultivation a double white-flowered variety of this which is quite an acquisition; it is one of the best plants with which I am acquainted for forming lines in ribbon borders, massing, &c.; it keeps long in bloom, and is

remarkably free in that respect. It is quite as easily raised from seed as the type, and if sown at the end of February or beginning of March in just a little heat, sufficient time will be given to get up good plants by the end of May; and the less coddling practised the better. I would recommend any one who has not tried it, and particularly those who have a goodly number of plants to raise in spring from seed, to give this a trial, and I think they will not be disappointed.—S. K., *Castle Upton*.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Wintering Half-hardy Plants.—Where the extent of glass for protecting plants during winter is limited, a good deal may be done by planting a portion of the stock on dry banks, or in any position where the amount of moisture during winter is reduced to a minimum. Many of the succulent plants, such as *Echeverias*, will stand a considerable degree of cold if dry, but succumb to slight frosts if wet at the root.—J. Groom, *Linton*.

Notes on Bedding Plants.—As regards plants just rooted, all should be at once got under cover, as the least touch of frost makes them difficult to winter; but, although housed, it will be necessary to afford plenty of air, and keep them as hardy as possible, as on this depends to a great extent their immunity from damp, for the harder the stems and leaves are the less liable are they to fog off when the days become shorter and dull. An old plant or two of *Lobelia*, *Heliotrope*, *Verbena*, *Ageratum*, *Mesembryanthemum cordifolium*, and such like, lifted and potted up now will afford plenty of cuttings in spring, which are always much better than autumn-propagated stock, and do not give a tithe of the trouble. Before getting any of these last named or other bedding material into their winter quarters, the walls of the pits, frames, or houses intended to receive them should be lime-washed and the glass cleansed, as it ought to be borne in mind that light is life to vegetation, and in the season now coming plants seldom get enough of it.—S. D.

Pyramid Pelargoniums at Clumber.—These reach 8 ft. and 9 ft. high, and still maintain a certain amount of gaiety in the terrace garden between the lake and the house, where they serve to relieve the somewhat sombre appearance of the clipped Conifers of the same form, with which they are associated. They consist of Beaton's Pink Nosegay, and are wintered under glass in a Vinery or other roomy house. It may be added that the ornamental grounds at Clumber, which had become sadly over-wooded, are being opened up and improved by Mr. Miller, who is now gardener there.—M.

Impatiens glandulifera.—Amongst other seeds kindly sent to us by Mr. Entwistle, of the Manchester Botanic Gardens, was this Balsam. It has grown vigorously, and is now an immense mass over 6 ft. in height and 4 ft. through, covered with pink flowers not unlike the poke bonnets at present in fashion, and each flower, being about 1½ in. in length, gives the plant a quaint and pretty appearance. But its most interesting peculiarity is the seed vessels, which resemble Radish pods, and burst with a loud crack on being touched, scattering brown, pillet-like seeds in all directions, and frequently in the face of the beholder. My little folks quite enjoy this plant, and take all visitors to it, in order to witness their surprise at being shot. Its habit is exactly like that of our greenhouse Balsam, only that it grows vigorously in the open garden. Our English Balsam, *Noli-me-tangere* or *Touch-me-not*, has the same peculiarity of discharging its seeds on being touched, but in other respects it differs greatly from the *Impatiens glandulifera*, having only four or five yellow flowers resembling those of the *Mimulus* of our gardens.—BROCKHURST.

Double Rockets.—I am much obliged to Mr. Williams, of Ormskirk, for his notes on the old double White Rocket (p. 325), which I was under the impression still existed about the neighbourhood of that town; but Mr. Williams says that it is not found there now, having disappeared as it has done from other places. Certainly about fifty years ago it was plentiful enough in the north of England, and it was not until about 1841 that I became acquainted with the giant or French one, which, when well grown, is really more useful than the old dwarf. I do not think, however, that the latter is lost sight of yet; about 1865 I met with it in an old garden a few miles from Glasgow, and brought a plant of it into Kent. Since then I gave it to several people as it seemed to thrive pretty well, though it was not robust. I have lost the purple several times during my life, but I fear more than once through inattention. It seemed to be taller in habit than the old dwarf white, though not so tall as the large one. I think there were two purples at one time; one simply a mauve colour, the other much darker. Mr. Williams is right about the yellow one not being a Rocket at all, but it is, nevertheless, a very pretty and desirable plant. The old double

Scarlet *Lychnis* is inferior to the old double *Catchfly*, a plant much neglected now-a-days, but it well deserves to be restored to the position which it once occupied.—AN OLD GARDENER.

Sedum spectabile.—This is a real gem amongst hardy plants, and one which must again come to the front, for it is so easily grown and flowers with such profusion under any kind of treatment, that once grown it is sure to recommend itself for further cultivation. In altering some large beds here last winter, some old-established edgings that had evidently stood many years in one place were lifted and planted wherever edging plants were required, and they have flowered magnificently, and for the last month have been borne down by their load of rosy-pink blossoms. Some planted on raised root-work in the full sunshine, where scarcely anything else would have grown, have been exceedingly bright and cheerful; while others planted in shady situations have been paler in hue. A quantity that were laid in the reserve garden, too, made such pretty decorative plants that they have been lifted and transferred to better quarters. This *Sedum* is extremely useful as a pot plant, and though left for weeks without water it does not suffer; in fact, it is proof against insects, or disease, or neglect, but it nevertheless well repays generous treatment. In looking over the cemetery gardens at Maidstone the other day, I observed this plant used as a centre for round beds of succulents, edged with double rows of *Echeverias* or *Sempervivums* of the hardy kinds, and they certainly were well worth imitating, being neat and trim at all seasons, and promised when the large, flat heads of *Sedum spectabile* were fully expanded to be a sight worth looking at. A sunny position should be chosen for this *Sedum*, but, as before stated, it requires no "special compounds" to grow it to perfection.—J. GROOM, *Linton*.

Border Polyanthuses.—The month of October presents by far the most favourable time for the lifting and division of old bottoms of these plants; and it is a work that should be done every two years at least, as the plants are by the very conditions of their growth forced year after year higher and higher out of the soil, and as the crowns increase there is less root room to be found for all. I find, in a couple of years or so, that strong-growing kinds will give a close cluster of some twelve to twenty separate crowns, each one rooted, yet each one united to a common base. If now these stools are lifted and pulled to pieces, each crown being severed from the base just below its new roots, and these are planted separately, they will make strong single plants next spring, and very robust plants the succeeding year. In some cases assistance can be given to old plants, that it is not desired to lift, by giving a liberal top-dressing of old pot soil about the surface roots, but this should be but a temporary expedient. Just now all the varied kinds of border Polyanthuses are throwing up numerous flowers; in fact, it is with them quite a spring time. Here hundreds of all kinds and colours are in bloom, and though not so fresh and welcome as in spring, they are exceedingly beautiful. Primroses are in the same way, and are now expending the store of autumn crown-bloom that is usually reserved until the spring. Yet how charming are these plants now when compared with the tender bedding plants so widely grown with so much trouble, and this year with so little satisfaction. Some that show promise of a good head of bloom may well be lifted into pots to help to make the greenhouse look gay for a season. The present blooming is also advantageous for those who wish to use these hardy plants for spring bedding, as it enables the colours to be correctly arranged.—A. D.

Flower Garden Notes.—Amid the wreck of autumn, there are still a few plants so superlatively good, after passing creditably through the past extraordinary summer, as to attract special notice. The varieties of *Phlox Drummondii* are still (October 11) in beautiful condition. The heavy rains do not seem to have injured them in the least, proving that they are eminently suited for a rainy district; and, judging from the present appearance of the beds and the successional flower heads constantly rising up, if the frost keeps off, they will go on flowering for weeks yet. It has been stated in a contemporary that this year the *Phloxes* have done best where sown in the open air in the position they are intended to occupy, thinning out the plants to about 6 in. apart; but this season has been so much out of joint, no one should have a theory upon its effect in the case of any class of plants. But there is no doubt that many kinds of annuals raised in heat in spring are impaired by too much crowding in small pots or boxes under glass before the period arrives for planting out. I have been so long convinced of this, that I never sow such things till April, and, after giving a start in gentle heat, prick them off and move them on to cold frames immediately. In this way the young plants are kept dwarf and sturdy, and the beds can always be of the same thickness all over, which is not always the case when sown where they have to flower, as little plants early in the season have a good many enemies to contend with. Another class of plants that have been remarkable for brilliancy of colouring

this wet season are the *Marigolds*, and they have never been brighter than at the present time. But the most remarkable yellow mass we have had this year is the old *Calliopsis Drummondii*. There has never been a break in its flowering, and it is still as full as ever. Sub-tropical plants have not attained to the same size as in former years, but the growth of variegated *Maples*, *Ailantus glandulosa*, and *Tamarix* has been remarkable. And the same may be said of trees and shrubs generally, especially young specimens. Among hardy plants that are now wonderfully attractive, are several species of *Rudbeckia*, with large yellow salver-shaped flowers; patches 1 ft. or more in diameter, in good soil, have a very striking effect, as have also strong patches of *Sedum spectabile*. One large bushy specimen that has been some time in flower fills a stone vase, where it stood out through the severe weather last winter, so no doubt need be entertained about its ability to stand rough usage and any degree of cold. Among *Michaelmas Daisies*, *Aster Novæ-Angliæ* is now very showy, having large blue flowers with dark disk. The *Pampas Grasses*, of which we have several groups, are fast showing their white plumes, which although as numerous as formerly, are hardly so tall and fine. Tuberous *Begonias* are still full of flowers in the beds in the garden; the two or three nights of slight frost do not appear to have injured them. There is a marked contrast between the *Begonia* beds and the *Pelargoniums*, much in favour of the former.—E. H.

Orchises on Great Ormes-Head.—I think the botanist who found (p. 346) *Orchis hircina*, *O. arachnites*, and *O. fusca* wild on the Ormes-Head was dreaming when he did so. The whole of the Llandudno Mountain has been worked to death by botanists, and none of the three have ever been recorded on good authority; anonymous statements will hardly be considered sufficient to prove such improbable discoveries. The local Orchises found abundantly on the mountain are *O. pyramidalis* and *O. conopsea*. I believe *O. apifera* has been found, but I searched the whole mountain carefully this year without finding it. *Orchis maculata*, with all its varieties of colour, is very abundant, and some of its forms might be rather like *O. fusca*; *Spiranthes autumnalis* also abounds there. *Listera cordata*, I believe, found, but the rarest *Orchis* I found myself in some plenty there is *Epipactis atro-rubens*. It is curious to find any one signing himself "Botanist" mentioning *Asperula odorata* and *Lysimachia Nummularia* amongst rare local plants.—C. W. D.

— "A. R." North Wales, whose attention has been called to the discovery of the *Orchis hircina* on the Ormes-Head, as recorded by "Botanist," has, I believe, very just cause for his doubts. Some time ago I had a communication from a person at Llandudno, directing my attention to a notice in a contemporary of a visit to the Ormes-Head in search of plants. The report appeared on October 4, describing, among other things, the finding of *Thalictrum adiantifolium*. No such plant exists in the British flora, and the name, I believe, is only a trade term for some species of *Thalictrum*. I know the Ormes-Head and its botany well, and have had the honour of going twice from Liverpool there with the botanical section of the Field Naturalists' Club. I have the said *Thalictrum* brought from there growing in my garden. I believe that among botanists it is referred to *T. minus*, or a form of it. It is well known that the Ormes-Head is famous for being the habitat of *Cotoneaster vulgaris*, but I never heard of its growing in the spot indicated, viz., near the "lighthouse;" I only could find it on the east side of the mountain, just above the town. I am afraid that this very same plant will soon, as a British plant, become extinct.—THOS. WILLIAMS, *Ormskirk*.

Two New Ornamental Grasses.—The *Holcus lanatus aureus* is a charming Grass, unlike any other with which I am acquainted. I found it on the wayside near Chilwell last spring. Its leaves, tinted with gold, are very handsome. The other, *Alopecurus pratensis argenteus*, is also distinct, the flower-stems being ivory white, and the foliage beautifully striped with green and white. This is also a roadside Grass, and one which I found last winter on the Burton Road, near Derby.—W. ELLIOTT, *Stockbridge, near Sheffield*.

Francoa ramosa.—This fine old Chilean plant is grown extensively by Mr. Jones, at Frogmore, for general decorative purposes. It is admirably adapted for cutting, as its long, branching stems, bearing numerous white blossoms, have a capital effect when mixed with other less elegant flowers. The plants are raised from seeds, and treated subsequently much in the same manner as the ordinary herbaceous *Calceolarias* are. In spring they furnish a large supply of flowers for a long time. No doubt the other kinds, *F. sonchifolia* and *F. appendiculata*, would be equally desirable, especially the former, as its flowers are scarlet, marked with a deeper spot in the middle of each petal. In *F. appendiculata* the flowers are of a paler hue, but it is a very beautiful plant. All these should be more generally grown than they are, besides a host of other well-tried plants.—W. G.

NOTES OF THE WEEK.

A New Water Plant (*Herpestis reflexa*).—It is an interesting fact in connection with a large number of aquatic plants that their foliage is cut or divided into numerous fine segments. Some noticeable examples of this in our native plants are the Water Violet (*Hottonia palustris*), and the Spiked Myriophyll (*Myriophyllum spicatum*), the Water Crowfoots (*Ranunculi*), and others. There are none, however, that excel in beauty and delicately-cut foliage this pretty exotic, which may be seen in the Water Lily House at Kew. The plant is wholly submerged except a few inches of each shoot, which is furnished with whorls of finely-cut pectinate or comb-like foliage, very similar to that of a *Neptunia* or the plants just named. The pleasing emerald-green of the leaves considerably enhances the beauty of the plant, and more particularly so at the time we saw it, when the delicate azure-blue flowers of *Nymphaea stellata* were springing up amongst its elegant feathery foliage. It belongs to the Figwort family, and is a native of Brazil.

Gentiana Kurroo.—In Mr. Bull's nursery this very beautiful hardy perennial from Northern India is now finely in flower. It is of dwarf habit, with the rather long, linear leaves arranged in compact tufts. The flower-stems are slender, terminated by a tubular blossom about 2 in. long. The colour is greenish-white on the outside of the tube; the broad divisions of the corolla are bright, clear blue, copiously speckled with white dots, except at the edges. It is apparently a vigorous grower, as it is thriving and flowering well in the open air. Such a distinct and beautiful plant will certainly find favour with all lovers of hardy flowers, and we are pleased to see that it has been successfully imported in considerable quantities.

Odontoglossum Londesboroughianum.—Though there are so many Orchids with yellow flowers, such beautiful kinds as this will always be appreciated. The high encomiums that have been passed upon it are by no means unmerited, a fact which a sight of the specimens now in flower in Messrs. Veitch's nursery fully confirms. The flowers, which form a loose cluster terminating an erect stem, are about 1½ in. across, the lip being broad, of firm texture, and of a clear rich yellow, forming a pleasing contrast to the other segments, which are distinctly barred with deep greenish-brown on a dark olive-green ground. It is gratifying to know that this handsome species has been imported in considerable quantity, so that it will probably become generally distributed in collections.

Hoya australis.—This species of *Hoya* is but seldom seen, though it is quite as old an introduction as some of the others, and quite as beautiful. Its habit of growth is very similar to that of *H. carnosa*; it has the same trailing habit and leathery, oval leaves, from the axils of which are produced clusters of star-shaped blossoms. These are somewhat larger than those of *H. carnosa*, thinner in texture, and the petals expand fully. The colour is white, inclined to pink, with a deep carmine centre. The long time during which the flowers last in perfection, together with its free-flowering tendency, make it a plant well worth attention. Like its congener, *H. carnosa*, it is a native of Australia. It may be seen in flower in the Water Lily house at Kew.

Ipsa speciosa.—This is a beautiful terrestrial Orchid though but seldom met with. It is of *Bletia*-like habit, with conical bulbs and lance-shaped plaited leaves about 1 ft. long. The flowers, which are borne singly on erect slender stalks, and about 2½ in. across, are of a bright yellow hue with the lip delicately pencilled with chocolate. It is a native of Ceylon, and was introduced to cultivation about forty years ago. We saw examples of it in flower a day or two ago in Mr. Bull's nursery.

Begonia Martiana.—This fine old plant is still unsurpassed by not a few of the new comers, especially when seen as grown by Mr. Barron at Chiswick. The plants are in pots, and the rather slender shoots, which are supported by sticks, are covered from almost the base to the extreme tip with large rosy-pink flowers, which have a central tuft of golden stamens. The flowers possess a peculiarly pleasing shade of colour, which is apparently unobtainable in the ordinary tuberous-rooted group. The numerous gemmules or incipient buds that are produced at the leaf axils, and also at points from which the flowers have fallen, is an interesting point in connexion with this species, as by this means the plant may be propagated extensively. Some plants of this kind were shown from Chiswick at the last meeting at South Kensington, and were much admired.

Bomarea oligantha.—This handsome climbing *Amaryllid* is finely in flower in the Pine-apple Nursery, Maida Vale. Its elegant habit and numerous drooping umbel-like clusters of flowers, which are of an orange-red colour and singularly spotted, render it very desirable for training to a pillar or rafter in a cool greenhouse, and it is all the more valuable on account of the succession of

bloom which it produces for several months in the year. Its congeners, *B. Carderi* and *B. Caldasii* are even more beautiful, as in the former the flowers are considerably larger, and both are brighter in colour than *B. oligantha*. They thrive well under pot culture, but are more satisfactory when planted out so as to allow of plenty of root development.

Tillandsia musaica.—This is a very handsome Bromeliad even when out of flower, the peculiar markings of the foliage being so distinct. It is not of the type usually seen in this class of plants, but it has hieroglyphic-like streaks of a dark tint running across it transversely, which have a singular appearance on the olive-green ground colour. A fine specimen of this plant in Mr. Bull's nursery is now bearing several spikes of blossoms, which are arranged in crowded clusters produced from the centre of the tufts of foliage, and consist of a series of orange-scarlet bracts, enclosing white-tipped yellow flowers. It is altogether a very handsome plant, and one that should always find a place in choice collections of decorative plants.

Boussingaultia baselloides.—This pretty South American twining plant is a conspicuous ornament in the Palm house at Kew, where it is now in full beauty. Its long festoons of small white blossoms, borne in graceful profusion, have a remarkably fine effect when seen suspended from either the roof or a pillar. It is quite hardy, but is by no means a satisfactory plant to grow in the open air in this climate, as it seldom attains more than a few feet in height and never flowers. For a stove or warm greenhouse, however, there are few more elegant plants, and its culture is of the simplest kind.

Pear Trees at Frogmore.—A somewhat novel mode of training young Pear trees is practised by Mr. Jones in the Royal Gardens at Frogmore. It is a modification of the cordon system. In every available unoccupied space against the walls rendered vacant by the removal of old trees, or where the extremities of the branches trained in the ordinary way have not met, maiden trees are planted, and their lateral or side shoots are trained so that the tips point downwards. The abundant crops of excellent fruits which every tree bears are evident proofs that this system, combined with other conditions, is highly conducive to productiveness, and it is a plan that is worth attention, especially in places where wall space is limited, as by this means a wall may be covered, and annual crops taken from the trees in a considerably less time than it requires to train trees in the ordinary way.

Yucca falcata.—A handsome plant under this name is now finely in flower in Mr. Peacock's garden at Sudbury House, Hammersmith. It is in the way of *Y. recurvifolia*, but is much more compact in growth and has much narrower leaves which have not a recurving tendency. Its large panicles of ivory-white blossoms, together with the noble habit of the plant render it a very desirable subject for conservatory decoration, and treated in that way it preserves its beauty for a much longer period than if fully exposed. It is, however, considered by Mr. Croucher to be quite as hardy as the better known kinds.

Bouvardias at Wortley.—During a recent visit to Wortley Hall I saw some well-grown *Bouvardias*. They consisted of elegans and *Vreelandii*, in the form of dwarf, compact bushes, the heads of some of which must have measured fully 2 ft. through, and they were one mass of flower. The largest plants were in 7-in. and 8-in. pots. They had been housed a few days previous to my visit, but had been plunged in the open ground fully exposed since the early part of June. Mr. Simpson assured me that they had not had a sash over them since that time, thus fully dispelling the old theory that *Bouvardias* must be grown under glass to do them justice.—G. SUMMERS, *Sandbeck Park, Rotherham*.

Ampelopsis Veitchi at Frogmore.—One of the sights now to be seen at Frogmore—and a beautiful one it is—is *Veitch's Ampelopsis*, splendid masses of which cover the walls and pillars at the entrance to the garden. A more gorgeous sight than is afforded by this Japanese climber could not well be imagined. In an exposed position, as in this instance, the plant assumes its full character in autumn, but in places where it is shady the leaves remain green until they drop; instances of this may be seen in some of the original plants that are planted against the walls in Messrs. Veitch's nursery at Chelsea. At the entrance to the Frogmore gardens, the walls form a semi-circle with prominent buttresses at intervals. Against these are planted the *Ampelopsis*, and between each a deep green foliaged tree, and the contrast thus afforded is remarkably striking. Amongst the plants there is an unusually deep crimson-leaved form, the foliage of which moreover is somewhat larger than that of the type; and this difference is not in any way owing to aspect, as the ordinary forms are planted by its side on the same exposure. The brilliant hues of the fading leaves alone render this

climber a most desirable subject, but its value is much enhanced by its peculiar habit of clinging to walls without the assistance of nailing, a feature of no small importance under some circumstances. This plant is also known as *A. tricuspidata*. In the same garden is planted largely the Fire Thorn (*Cratægus pyracantha*) a well-known, brilliant, berry-bearing autumn shrub.

New Winter Garden in Belgium.—The King of the Belgians has just had constructed a spacious winter garden in his park at Laeken. It is the largest on the Continent. The cupola, made of iron and glass, is 60 metres in diameter and 30 metres in height. It is supported by thirty-six columns of white marble, each being one metre in diameter.

Seed Failures.—The following vegetable seeds are stated by the Seed Trade Association to be almost total failures, viz., Wrinkled Peas, Cauliflower, Altringham and other varieties of Carrot, Ridge Cucumber, Musselburgh Leek, Paris White Cos and other sorts of Lettuce, English varieties of Onion, Mangold Wurzel, and Scotch Turnips.

The French Vineyards.—Mr. R. Cuddeford, of 66, Mark Lane, sends *The Times* the following copy of a letter just received from Mr. Ernest Irroy, one of the large Vineyard proprietors in the district of the Marne, France: "Here in Bouzy and Verzany, &c., there is not a Grape ripe, a circumstance amounting to quite a disaster, the worse because the wood of the Vines is also immature, and the next vintage for the year 1880 will not be a good one. As the leaves of the Vines are fallen, I am now cutting the Grapes that are red; there is about one-fourth red, the remainder are green. I shall leave the green ones in the Vineyards. Nobody remembers to have seen such a state of things in Champagne."

The Mitcham Flower Farms.—Dr. Septimus Piesse, of Hughenden House, Chiswick, writes, in reference to his Lavender and Peppermint farms at Mitcham, and to those of other growers in Surrey, including Merton and Carshalton, and Hitchin in Hertfordshire, that the produce this year has decreased 40 per cent. below a seven-years' average, and 55 per cent below that mentioned in *The Times* of August 22, 1876, from which date the crops have suffered from want of sunlight and temperature.

Chrysanthemum Societies.—The following will hold their annual exhibitions on the dates annexed:—Birmingham, November 26—27; Hackney, at the Royal Aquarium, Westminster, November 19—20; Brixton, November 13—14; Southampton, November 18—19.

Floral Decorations at Sheffield.—Amongst other things connected with the visit of H.R.H. Prince Leopold to Sheffield to open the new Firth College, the floral decorations at the Victoria Station by Messrs. Fisher, Son, and Sibray, of the Handsworth Nurseries, deserve commendation. The semi-circular reception platform was capitally arranged. Amongst a wreath of *Dracænas*, *Crotons*, *Palms*, *Adiantums*, and other Ferns, were grand spikes of *Gladioli*, *Phloxes*, *Liliums*, &c., exemplifying as *THE GARDEN* has so often urged the great value of these autumnal flowers as decorative subjects at a time of the year when brilliantly coloured flowers are the exception. Two memorial Oaks were planted by the Prince in the grounds of Oakbrook, the residence of Mr. Mark Firth.

Vines not Ripening in France.—It is not only in England the past season has been bad. M. Guichenot tells us that the Grapes have not ripened in Anjou, but are yet green and hard. It is, of course, the same in many parts further north. Pears are of very inferior quality about Angers, which is generally a capital region for fruit.

The Woolly Aphis.—I strongly advise "Delta" to stick to the paraffin cure for this pest of the Auricula, but he should use it a little more liberally, and not in homœopathic doses. My proportion is four or five tablespoonfuls to a gallon of water; stir it well first, then in application turn the plant out of the pot, dip the ball right into the mixture, giving it a turn round in it to ensure its equal distribution, then drop the plant at once into a clean pot of the same size as the preceding one. I have found this to kill all aphides, and not to injure the roots in the least. A plant of *Primula denticulata*, growing in a 5-in. pot, and which had been standing amidst some affected Auriculas, had a perfect mat of the most minute rootlets and many large feeders. This ball was literally smothered with the aphis; in fact, was as white as snow. This I dipped, as stated, and killed all the enemy; but, wishing to see how far paraffin might affect the roots, I dipped it again twice at intervals, and although for more than a week after the ball smelt most strongly of paraffin, yet not a rootlet appeared to be the worse. I think this is a matter of the first importance, and especially to Auricula growers. It is noteworthy that, as far as my own observation goes, this aphis does not attack Auriculas or allied plants in the open ground.—A. D.

PLATE CCIII.

A GROUP OF PYRETHRUMS.

Drawn by CONSTANCE PIERREPONT.

THE perfection to which the varieties of the Pyrethrum have been brought places them amongst the most useful of hardy flowers. Their elegant Fern-like foliage, diversity of colour of their flowers, their continuous habit of blooming, combined with the simplicity of their culture, render them almost indispensable to every garden. Their perfect hardiness, too, is another point in their favour. They grow in almost any position and soil, but thrive best in an open border in a rich and rather stiff soil, though some of my plants have grown admirably in a light soil in a shady border. Under such treatment they attain a height of 8 in. in the dwarf-growing kinds, and nearly 3 ft. in the more robust sorts. They are capital plants for cutting from, as they last such a long time when placed in water; and for this purpose they are specially valuable, as they begin to flower in spring when there are but comparatively few other plants in flower, and last throughout the summer till late in autumn. In order to obtain fine blooms late in the season, the withered flowers of the early crops should be continually removed, and the plants should be mulched with manure so as to encourage a vigorous growth. They may be freely propagated by division or offshoots. They may be increased also by seeds, which, in some seasons, are produced plentifully, and it is very interesting to watch for new colours and forms. As may be seen by the accompanying plate there is a wide range of colour, varying from pure white and golden-yellow, through pink and red to the deepest crimson, and almost every conceivable intermediate shade of tint. Like many other kinds of Composites which have been manipulated by the florists, there are several types of arrangement of the florets; for instance, in the original kind, as in roseum nanum on the plate, the central florets are yellow and the others of a deep rose. These may be termed the single-flowered kinds. In the fine variety, J. N. Twerdy, at the top of the plate, the florets are all strap-shaped, making a Chrysanthemum-like bloom. The white kind, The Bride, the yellow Nancy, and Progress, are examples of the quilled-flowered section, which are similar to those of the quilled-flowered China Asters. The intermediate form between the Chrysanthemum and the quilled-flowered groups may be seen in Paul Journet, and also in the lowermost bloom on the plate, which has the centre of the quilled form, and the outer of strap-shaped, either of the same colour or different shades of one colour. There is now a long list of named varieties to be found in trade catalogues, and, though they are for the most part distinct, there are many in which the colour of the flowers nearly approach each other. The selection of blooms figured was from a collection of ninety varieties. If a good selection is once grown there are not many who would care to be without them, and they certainly ought to be more generally grown in every garden. JOSEPH STEVENS.

Byfleet.

[The specimens from which our plate was prepared were supplied by our correspondent from his garden at Byfleet.]

Alpine Plants and Rockeries.—Mr. Goldring's description (p. 344) of Messrs. Backhouse's rockwork will cause many to be "in a strait betwixt two opinions." It will either induce people to attempt to build rockwork in some form or other, or it may deter many from attempting the construction of rockwork or growing Alpines at all. The ridicule associated with puny rockwork on the one hand, and the noble rockery at York on the other, are calculated to make people for ever abandon the attempt. As a lesson, the rockery at York teaches too much, being a lesson that few can learn; and, perhaps, conveying the erroneous idea that such rockwork as that at York is necessary in order to grow Alpine plants to perfection. The broad fact is, there is too much fuss made about Alpines, which may be, and are, grown well without any rockery at all. People should look at the noble rockery at York not as a necessary adjunct to the tradesman in Alpines, but as the outcome of a refined and liberal taste, such as very few private persons, and fewer tradesmen, have in their power to imitate. The rockwork at York is certainly a triumph of imitative art, of which I am sorry to say few examples exist. Most of the parks, gardens, and public squares in England are disfigured by abortions called rockeries. With meitis a fixed rule to judge of a person's taste by his rockwork. A very pleasing little book could be written on "Reminiscences of Rockeries," and though the desire to possess rockwork of some kind is almost universal, from the rockery of Mr. Tomkin's, with stone lions, carved men's heads, and pieces of fluted columns, to the cliff at Chatsworth, yet in most cases rockwork is little better than a parody on Nature. Though these remarks may be digressive, I cannot conclude without adverting to the very



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comprehensive meaning attached by some people to what are called Alpines. One is led to imagine that instead of their being tender, delicate, costly, and difficult to grow, they must be on a level with Groundsel and Chickweed, seeing they are offered at something less than 2½d. each in THE GARDEN of last week (the 18th). One hundred Alpines for 18s. ! barely the price of three first-class Alpines.—THOMAS WILLIAMS, *Ormskirk*.

THE FRUIT GARDEN.

PLUM TREES IN POTS.

KNOWING how manageable Plums are in pots, one is led to ask why more attention is not given to that system of culture. A comparatively small house will shelter a great many trees in spring during the flowering period; and after the fruit is safely set, and all danger from spring frosts passed away, half or more of the trees might be plunged in the open air, with the certainty of their doing well. Except in favoured spots, where the climate is good, Peaches or Apricots would not ripen well under this treatment; but Plums may be safely relied on everywhere to do so. Most kinds of Plums readily assume the pyramidal form, and this shape is the most suitable and profitable, as more fruit can be obtained from a given space by this mode of training than any other. The autumn is the best time to lift and pot the trees. They should be lifted with all the fibrous roots possible. The long roots should be shortened back, for the double purpose of encouraging the production of fibres and rendering the employment of convenient-sized pots possible. Plums under pot culture are long-lived, and it is advisable to confine them within the limits of as small pots as is consistent with health and vigour. Fruit-growing in pots is mainly a question of rich mulchings and liquid manure; therefore very large pots will not be required for several years. Gradually, of course, as the trees increase in size, the root space must be augmented, until they occupy 15-in. pots, in which size they will continue in good bearing condition many years, if well fed.

The soil they are potted in should be good sound, fibry, somewhat adhesive loam. All stone fruits are benefited by having a proportion of lime in the soil; therefore, if the soil in the neighbourhood is of a non-calcareous character, a little chalk might be added when chopping up and preparing the soil for potting. As the trees in the growing season will require a good deal of water, the drainage should be carefully laid in the bottom of the pots, but not more than is necessary to effect this object should be used—one crock over the hole so arranged as to keep out worms, and at the same time allow the water to pass through freely; over this a layer of rather large crocks 2 in. thick, and over the top of the crocks a layer of new Cocoa-fibre. This latter substance is excellent for keeping the drainage clear, and should be used for the purpose more than it is done, as its tough fibrous nature makes it so lasting. I have alluded to this matter somewhat fully, as drainage must form the basis of all good cultivation, both in pots and elsewhere. I have already stated that loam should form the main bulk of the soil for all fruits, adding more or less of manurial matters as may be necessary to supply anything that is lacking in the natural soil. Thus, chalk to supply lime; bones, again, to a certain extent, supply lime in addition to other valuable constituents when used fresh, though in this case the lime is not immediately available. Horse-droppings, shaken from the straw and laid up with the soil for a time, will supply most of the manurial elements that fruit trees require, with little cost of money or time, though cow or pig manure will be better for light hot soils, as they are of a cooler nature. But when I have, from necessity, had to use such soils for fruit culture, I have always contrived to find some clay to mix with it. The clay should be laid up till it becomes perfectly dry, then break it up on a hard floor into powder, when it will thoroughly mix with the soil, in a condition for the roots to work among at once. Firm potting is essential, and rich mulchings of old turf and manure are very beneficial when the crop of fruit is swelling. The plants will not require potting every year; indeed, after they have reached 15-in. pots they will continue fruitful for a number of years with annual top-dressings, removing as much of the old surface soil as can be taken out without doing much injury to the roots, and filling up with good turf and manure, ramming it well down.

The summer management of Plums in pots is a very simple matter, much more so than with Peaches. It consists in keeping the young wood thinned out to let in air and sunshine, and pinching the young shoots back to four good leaves, and using the syringe or garden engine often during fine bright weather. Whatever top-dressing or pruning is required should be done in autumn, as soon

as the leaves fall, and the trees then be grouped together either on a coal-ash bed, a paved floor, or on boards in the open air; and the pots should be surrounded with litter, to keep the frost from breaking them and to protect the roots of the trees. In this position they will remain till the buds begin to move, when they should be taken indoors. It will be an advantage, also, if there is a flow and return hot-water pipe in the house, although this may not in all cases be necessary, as the nights in spring in which fire-heat will be wanted, even in unfavourable districts, are few in number, and some temporary expedient, when the trouble was not rated high, could be adopted. For instance, many a crop of fruit might be saved in an unheated orchard house if a couple of ordinary paraffin lamps or candles could be lighted and kept burning all night for the very few nights that frost prevails. A pot or two of hot ashes would also give off a good deal of heat for some time. Sometimes the trees under glass set more fruit than they ought to carry; and in that case thinning, of course, should be resorted to in good time. The following list of Plums are well adapted for pot culture: Early Transparent Gage, Golden Drop, Green Gage, Huling's Superb, Jefferson, Kirke's, Reine Claude de Bavay, Transparent Gage, Washington, Angelina Burdett, Early Favourite (Rivers's), Victoria, Cox's Emperor, Belle de Septembre, Autumn Compôte, Goliath, Pond's Seedling, and Prince of Wales. It will be well to have several trees of such useful free-bearing kinds as Transparent Gage and Golden Drop in preference to a large number of varieties. The kitchen varieties would be mostly turned out in the open air as the weather became suitable, and only the best dessert kinds retained in the house to ripen.—*Field*.

SWELLING AND RIPENING OF PEARS.

It would be interesting to know how the different kinds of Pears have behaved in the various localities this very exceptional season. Some kinds, so far as regards size and appearance, seem almost equal to ordinary years, but others are absolutely worthless. So far as I have had opportunities of observing it is, as might be expected, the late keeping sorts that are deficient in size; they are starved, stunted, and cracked, and often disfigured by mildew. It may be a mere fancy, but I cannot help thinking that those kinds with a brown or russet skin, such as the Winter Nelis, are much in advance, i.e., they seem to be less affected by the unfavourable character of the season than those with a green or lemon-coloured skin, of which Glou Morceau may be taken as the type, and which is this year absolutely worthless, although it is, in ordinary seasons, one of our best Pears for winter. Marie Louise and Beurré de Capiamont are little, if anything, below their average size, and though the latter is not a first-class Pear, yet it is so sure a bearer, and the tree is under all circumstances and in all soils such a good grower, that it is worth planting by those who plant for profit. Pears are very likely to ripen unequally this winter, and some of the winter kinds will be much improved by being placed in a warm cupboard, or in some position where the temperature can be raised to 55° or 60°. Very often such late Pears as Ne Plus Meuris and Beurré Rance will not ripen or become melting at all without this help from a little artificial heat during the last month or so. Some kinds of Pears, if left on the trees too long, become gritty and lose flavour, but Marie Louise may be permitted to hang as long as it will without suffering any deterioration from that cause; but whenever it is decided to leave them on the trees longer than usual, it will be well to draw a net over them to keep off birds, as they sometimes do a deal of mischief by picking holes in the best fruit, and the smallest hole will ruin a Pear, as regards its keeping properties; but those pecked or damaged Pears are very good for cooking or stewing. The small blue-caps or tits seem the most destructive amongst Apples and Pears at this season, and netting up the fruit and shooting the birds seem the only remedies that can be relied on. The season of particular Pears in a scarce year may often be prolonged by gathering them in succession, and by bringing them on in various degrees of temperature—some retarded by being packed in a close jar, and placed in a cool cellar or room; others hastened by being put in heat; but the different kinds should still be taken in succession, as to place a very late Pear in heat too soon would cause it to shrivel instead of ripen. Seasonable time must be allowed for the juices of the fruit to be properly developed. Late Pears should be allowed to hang longer this year than usual, as the leaves are so green the fruits are swelling yet, though on the morning of the 15th inst. the thermometer registered here 5° of frost. The usual indication of approaching maturity, such as parting readily from the stalk, pips assuming a dark colour, &c., are known to most fruit-growers, and may generally be taken as a safe rule. The leaves, too, will furnish evidence as to the right time to gather the fruit, as they are exposed to the same retarding influences.

E. HOBDAY.

SHELTER FOR FRUIT TREES.

THERE can be but little doubt that were the intelligence, experience, and energy of fruit-growers throughout the country brought to bear upon this matter, we might in time, to a great extent, be enabled to ensure a crop of fruit even in the worst of seasons. Why is it, for instance, that in a locality where fruit is a general failure, one may often see a garden or orchard where the fruit trees are bearing a fine crop? Such instances, of which a remarkable one this season came under my notice, are by no means rare. In this district Plums this year were a general failure. One plantation alone presented such a complete and striking contrast to all others as to induce me to carefully note the conditions under which the crop of fruit was produced. In the first place, the garden is situated in the immediate vicinity of a farmhouse, and is sheltered on the north by the buildings appertaining thereto. On the west is a dense wood which sweeps gradually round to the south, but in such a manner as to admit of the trees getting the full benefit of the sun. On the east side, and at no great distance from the garden, are also thick plantations of forest trees. It will thus be seen that these fruit trees are screened from the rough westerly gales, are protected in the most efficient manner from the biting north and east winds—which so often paralyse the functions of the trees, and cause the fruit to drop off, even when fairly set—but at the same time are fully exposed to the full heat of the sun. No better example than this could be found of the manner in which shelter might be utilised in the culture of hardy fruits in this country. Here was afforded ample proof that, even in the most adverse and inclement of seasons, a crop of fruit, and that of excellent quality, might be obtained. These Plums were probably worth more to the grower than ten times the quantity would be in an average season.

By judiciously planting for shelter the climate of the bleakest and most exposed situation might be so ameliorated as to render it no difficult matter to make the production of a crop of fruit a matter of tolerable certainty. In the case of the garden above described there could have been but one cause for its entire exemption from the general disastrous failure. The kinds of Plums were the same as those usually planted in the district, and the soil is of the ordinary description. To the complete thorough manner in which the trees happen to be sheltered must, therefore, be ascribed the bountiful crop which they have borne. What is now required in this country is a system of fruit culture by which we may, to a certain extent, ensure ourselves against those fruit famines which we periodically experience. We are too apt to get either one or several years of glut to be succeeded by a season of scarcity. A good, well-studied system of shelter-planting would, I am convinced, help in a great measure to remedy this defect, and the sooner growers give this part of the subject their serious consideration the better will it be for them and the fruit-consuming public. J. CORNHILL.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Bags Best for Fruit Gathering.—At this season, when the gathering-in of fruit is occupying more or less attention, it may not be out of place to reiterate the desirability of using the greatest care not to bruise the fruit, as if meant to keep any length of time the smallest bruise is sure to cause premature decay. In many parts of the country gathering baskets are used, but about here good large bags, made of stout sacking or hop-pocketing material, are generally employed, and they are certainly preferable to baskets, as there are no hard or sharp edges to bruise the fruit. The bag is slung over the back of the gatherer, and by this means when on a ladder both hands are free to gather and drop the fruit into the bag. Anyone using these bags will never again use baskets. —J. GROOM, *Linton*.

Apricots for October.—It seems impossible, but so it is; we gathered none this season till towards the end of September, and we gathered our last only a few days ago. Few of them have had much flavour, thus they have not merely been out of season, but also very inferior in quality. Neither is this much to be wondered at. A wet cold summer is hardly the weather to develop quality in Apricots. The colour is golden, as usual, but the delicious aroma is wanting. Still they are welcome, as usual, for the dessert, and perhaps all the more welcome for their rarity. Probably of all our fruit trees the Apricots have suffered most. Many fine healthy trees have been utterly wrecked and ruined—almost all have been crippled. It is rather difficult to know what to do about Apricots. It is easy to advise more shelter, or the growing of them under glass; but Apricots too often resent both plans, by simply casting off their fruit in the most efficient manner. They are most impatient of coddling, and seldom yield a full crop under glass. Perhaps the better way will be to try diagonal cordons. These can be planted within 18 in. of each other, and will furnish the walls with so much root

power that should one or several trees fail the loss of space will be trifling, and may soon be refilled. Planted and trained in the usual way, the loss of several Apricot trees creates a serious blank in the walls, and is a great loss to the grower. —D. T. F.

Root Pruning.—Mr. Groom says (p. 347) that "root pruning" might, in most cases, be remedied by our circumscribing the root-space so that the roots could not again descend into the cold substratum, or extend further than was found necessary. This does not differ from root-pruning in principle. Does not root-pruning limit the rooting space and prevent the roots from "extending farther than is found necessary," and I know of no other way of doing this, in the case of plantations of fruit trees, except by root-pruning in the usual way; but it seems Mr. Groom would box off his orchard trees in brick pits like the inside Peaches at Floors; Mr. Groom has, in short, virtually and fully conceded all that I ever contended for. But I would like to know the eastern and western counties of England, where the soil "is light and warm, and far better suited to the production of fruit trees than Kent." Does he mean the deep, heavy, clayey loams of Lincolnshire and East Yorkshire, where in plenty of instances you can push a spade over the head, handle and all, without meeting obstruction? or the cold, blue clays of Durham and the coal districts? or the same in West Lancashire and Yorkshire? Does he mean the dripping climate of the north-west of England or the heavy lands of the west of Scotland, where the rainfall is still greater? It is a trifle too late in the day for Mr. Groom to try to persuade us that root pruning can be dispensed with under such conditions, or that either the soil or the climate of Kent is less suitable to fruit culture than the counties above named, or any others, after what we know of its capabilities, and what Mr. Groom has himself told us on former occasions. —J. S. W.

Green Chisel Pear.—An adverse season often has the effect of bringing into prominence certain kinds of fruits and vegetables whose merits in ordinary years would hardly be fully recognised. The experience of this season will tend to prove that the Chisel Pear is one of the most valuable and reliable varieties that we possess, and I would strongly urge intending planters to include it in their list. More especially would I recommend it to those who may have a cold damp subsoil, or soil of a character not wholly favourable to the growth of the Pear, with which to contend. With the exception of the old Perry Pear, it is almost the only kind bearing a full crop in this district, and many instances of its capability of bearing a crop of fruit under very adverse circumstances have lately come under my observation. In some cases I have remarked trees loaded with fruit when surrounded by many other kinds of both Apples and Pears on which scarcely a fruit could be found. —J. CORNHILL.

Small Fruit Trees.—Wickham Pippin Apple and Knight's Monarch Pear are apparently well suited for those whose gardens do not admit of the culture of fruit trees of large dimensions. Quite miniature trees of both kinds have borne good crops this season in the gardens at St. George's Hill, Byfleet. I would recommend these two varieties to the notice of owners of small gardens. —J. C., *Byfleet*.

Peach Training on the Extension System.—Noticing (p. 348) how strongly "J. S. W." advocates this system, may I ask for information as to what is meant by extension, for unless a tree is crippled through want of space or barbarous pruning, it must naturally extend itself. Mr. Coleman tells us (p. 329) that the giant Peach trees at Floors carry annually one Peach to a square foot. Surely that must be a mistake, for, to say the very least of it, it cannot be called a crop. —T. COWBURN.

Gardening in the City.—Within the purlieus of the ancient Charterhouse, that fine old institution which Thackeray has so truly immortalised in his novels, there is year after year an attempt made within its courts at floral decoration. There is, perhaps, as much of sunshine and warmth, and perhaps of shelter, as is to be found anywhere else in the City, but some dread spell hangs over the place, and flowers of all kinds put out in beds in spring soon wither and die. Yet the Grass lawns are green and fresh, Mulberries ripen their fruit, and we have seen well-grown Chrysanthemums there. Fuchsias, too, seem to thrive, and large numbers of these grown in pots are during the summer placed singly against the cloister columns, to give a little life and cheerfulness to the dingy brickwork. The sorts are chiefly old, and many of them probably in the present day almost unknown. Ivy is also a favourite climber, but as it is evergreen it lacks that freshness and vigour that is found in the deciduous Fig, which grows with great vigour, but does not fruit. Much sooty incrustation may be seen on the walls, therefore in such a situation gardening must of necessity be full of difficulties, but still everything possible is done to give to the old brethren in this establishment some little taste of the beauties of the country in their brick-enclosed habitation. —A. D.

GARDENING FOR THE WEEK.

Conservatory.

THE amount of bloom here at present will unavoidably be smaller than at any other time during the season. This is always the case until *Chrysanthemums* come in, but where a sufficient number of *Camellias* exist to admit of their growth being so regulated as to have a portion opening their flowers about this time, not only will they be found most useful for cutting, but, when in a healthy thriving condition, furnished with plenty of foliage, the combination of leaf and bloom which they possess makes them second to no plants in cultivation. The autumn-flowering *Veronicas*, too, that were lifted and potted some weeks back will have got sufficiently over the check sustained thereby to admit of their introduction here, where their bluish-lavender tints will be an acceptable feature now for many weeks. Amongst hard-wooded plants of the easiest possible growth that flower at this season may be named the *Croweas*, which, although never making such a display at any one time as some plants will, still nevertheless keep on producing their pretty pink, star-like flowers to the end of the year. These with *Tetratea verticillata*, the red-flowered *Leschenaultias*, *Cassia corymbosa*, and some of the *Correas*, will help to relieve the sombre appearance of the green foliage, which at this time predominates. It is now also that plants grown both as standards and in bush fashion of *Habrothamnus elegans* and *Heliotrope* will be found most useful; the little extra warmth kept up here will assist the free development of their flowers. These, in company with other quick-growing subjects, though not requiring the assistance of manure water nearly so much as during the principal growing season, will nevertheless be benefited by a weak application once a fortnight. The autumn-blooming *Salvias* will likewise be available, and will bear standing closer amongst larger-growing plants without their close contact being of so much consequence as in the case of plants not grown up from cuttings annually. Any old examples of *Primulas* that have been kept on from last year will be useful for standing interspersed about the house. Where good healthy examples of *Oranges* exist there is no period of the year when the appearance of their fruit in its different stages is more acceptable than during this scarce time for flowers. *Solanums*, also, where sufficiently early to even have a portion of their berries assuming the ripened colour, will be of service. The many fine-leaved plants it is necessary to introduce at this season to give conservatories a furnished look should be kept scrupulously clean; the washing and sponging consequent upon this have the double advantage of keeping the leaves in a slightly condition and freeing them from insects, which, where even the highest keeping is maintained, entail more incessant labour than anything else connected with plant cultivation.

Greenhouse.

Tying Hard-wooded Greenhouse Plants.—This work is not absolutely necessary to be done in the early part of the winter, but still it is not well to delay it later than can be avoided, inasmuch as where all such operations can be got out of hand as early as possible, there is more leisure for paying attention to other things as these come on. To those who have not had much experience with the work I would urge the necessity for as little injury as possible being inflicted on the roots, to avoid which, as I have before suggested, the new sticks should be inserted in the holes that have been occupied by the old ones; in all cases do not draw the ligatures so tight as to leave any danger of the shoots growing so as to get injured before the material used in tying either has to be removed, or gets so far decayed as to give way if the growths expand to stretch it. Previous to tying, all plants that are subject to mildew should be examined to see that they are free from this pest, and where found, either dust with sulphur, or syringe with water impregnated with sulphur; and all should be freed from any insects that may exist upon them, as the loosening of the branches before tying gives an opportunity for doing this work more effectually than after the training is complete. Loop as many shoots as possible into their positions, so as to furnish each specimen, large or small, evenly over with shoots; by which means fewer sticks will be needed, and yet the untidy condition of the branches lopping about be avoided. It used to be the custom with hard-wooded plants when the tying was completed, to loosen up a portion of the surface soil with a pointed stick or similar contrivance, which, when removed, was replaced with new, under the impression that this was a benefit to the plants, and to give them a neater appearance; but so far as the former is concerned nothing can be more erroneous, as healthy plants invariably have the soil near the surface of the ball full of active roots, that in the removal cannot avoid being injured; and so far as the new soil being an assistance to the plants in the way of a stimulant, this can be supplied to any extent by manure water, or concentrated manure applied to the surface when the plants are making active growth, which is just the period when it is most required and most

effectual; and independently of this, the unnatural covering of the strong roots immediately proceeding from the collar, which invariably takes place when the above course is followed, has the worst effect, and, I feel convinced, causes the destruction of numbers of plants that would otherwise be healthy. A word as to the material of which the sticks are made and their colour: there is nothing lasts so long, or in the end is so cheap, as home-made sticks from the heart-wood of the best Baltic Deal, quite free from knots, such as the lath-makers use. The commonest plants should never, as we sometimes see them, be supported by unpainted sticks. The colour of the paint used is best of a neutral shade of green such as will be least observable, as the less of this work visible the better.

Cyclamens.—Pay every attention to these, both the older plants as well as those raised from seed, which have not yet flowered. Where there is not the means at command of growing them in a pit or small house, either wholly by themselves, or where the temperature can be regulated so as to make their requirements the first consideration, if a few could be moved to a position where they can be kept at about 45° in the night, with a day temperature proportionately higher than that of an ordinary greenhouse, they will come earlier into bloom.

Chrysanthemums.—In autumns like the present when *Chrysanthemums* in most instances are very late, there is often a difficulty with them where sufficient and suitable accommodation does not happen to exist, especially in the north of the kingdom where, without some protection, it is not safe to trust them out-of-doors even so late as this; for although hardy, still blooming as late as they do, if their advancing buds are subjected to many degrees of frost, I have seen them severely injured. On the other hand, they do better with more air than at this season is given to an ordinary greenhouse, for if kept at all close it has the effect of drawing out the flower shoots weakly, and if any mildew is present upon them the absence of a free admission of air day and night tends to cause its spreading, and if put in houses, already in many cases too full of other things, the *Chrysanthemums* not only get injured themselves but do harm to other plants as well. Where there happens to be a Vinery that is started early, the Vines, as a matter of course, being now denuded of their leaves, it will be just the place for them for a few weeks until their flowers are about to open, leaving plenty of air on night and day unless there is an appearance of sharp frost. A place of this kind not being available, I have found an improvised contrivance, such as spare hotbed lights put over a temporary framework up to a south wall, with a loose piece of canvas or mats that can be put up in the nights to protect the ends and front, answer all the purposes required. Glazed lights being wanting, an ordinary blind, such as that used for shading plant houses in summer, working on a roller so as to let down in the nights and expose them in the day in fine weather, is the next best thing to resort to. Continue to thin out the buds as they get large enough to lay hold of. Much thinning of the flowers for ordinary use is looked upon by many as unnecessary, but this view is far from being correct, as in the case of plants only wanted for decorative purposes if the flowers are reduced to, say, one-fifth of the number formed, these will be very much better than the greater quantity which would be less fully developed, and individually not possess near the substance to enable them to last long which the thinned examples have. The almost continual rains have much reduced the amount of hand-watering these plants have required whilst in the open air, correspondingly limiting the opportunity of assisting them with liquid manure. They will now be benefited by stimulants of this kind altogether, but for the benefit of young growers it may be observed that although *Chrysanthemums* are exceptionally gross feeding plants and enjoy much more moisture in the soil than most plants will bear, still it will not do to keep them too wet or the roots will be damaged. Whatever stakes and ties are necessary should be given them, for such giving the preference to dry Willows or Hazels rather than painted sticks or the ugly deal often used without paint. Keep a look-out for mildew and dust any affected leaves that are detected, or it very soon will spread with a rapidity that will render the plants bare and unsightly at the time of blooming, with a proportionate weakening influence on the flowers. Should worms have got into the pots let the soil get a little dry, and then give a good soaking of clear lime water, which will dislodge them.—T. BAINES.

Flower Garden.

Auriculas.—"Delta" seems determined to have the last word respecting the woolly aphid. I know the pest well, have seen and examined it, and never mistook it for mealy bug. I am continually getting plants from places where I know that it exists; indeed, I have had a plant sent me the roots of which were stated to be affected with the woolly aphid. I treated it as I do all plants under similar circumstances, and as I have recommended to be done in THE GARDEN. By such means, so far, the pest has not been able to establish itself here. Some of our best growers and exhibitors have been

troubled with it, and have destroyed it in the way which I have recommended; they are thus able to exhibit and take prizes notwithstanding its attacks, which it seems "Delta" is not. A good grower, writing in a contemporary last week, says it is no new visitant, but he, like many others, states that "it is easily kept in check," and that it will not of itself materially injure a plant unless aided by some other form of neglect. I have just read Mr. Horner's remarks in a contemporary in 1877, where he gives the very same directions for its destruction which I do. His words are "the simple solution of soft soap is enough." I read that one grower soaks his plants in paraffin solution until the soil smells strongly of that oil, but it is impossible for valuable plants to succeed in such soil. Clear your plants of the pest; then clean them of the substance that destroyed it, and then replot in fresh soil. Let this be done, even if it should be midwinter.

Carnations and Picotees.—I have just seen Mr. Dodwell's collection at Clapham, which must certainly be considered to be by far the largest and best private collection in Britain. It not only comprises all the best named sorts in cultivation, but also the largest and best lot of seedling varieties in the country. They were layered as early as possible, and yet the percentage of unrooted layers is much larger than that of rooted ones. Those therefore who have but small collections will have a difficulty in obtaining plants. It is also a question where the store pots can be placed. Our own plan, when it is found that the layers are not rooted, is to pull the old plants out of the ground. If it has four layers all callused but without roots, then I cut the plant down the middle with a sharp knife, leaving two layers and a portion of roots to each division. The two layers are potted in a 3-in. pot, the same as if no roots were attached; thus treated, it will be found at potting time that these have rooted from the callus, and are in as good condition for potting as the earliest rooted layers.

Dahlias.—What a glorious October it has been for these; they are flowering as I write in the greatest profusion. We could ill spare any of them, either double or single, but the latter are most useful for decorative purposes when cut from the plant. Paragon it seems is merely a variety of *D. variabilis*; but be that as it may it reminds us of the beautiful single flowers about which some of the old florists yet alive can speak. The colour, size, and shape of the ray florets are beautiful in the extreme, and if flowers of similar merit could be obtained now, they would be as eagerly purchased as Paragon has been. Dahlias have not suffered in the least from frost as yet with us, and it is still necessary to tie out the stems, and to see that the ground is kept neat and clean underneath them.

Gladioli.—These, like Dahlias, still continue to produce flowers, but the cold nights are rather more trying to them than to the Dahlias. While the weather is dry the bulbs may be left in the ground, but it is well to see that they are taken up should a change occur. The ground intended for planting next year should be prepared at once. I have left this sometimes until midwinter, but found that they did not succeed nearly so well as when it was trenched earlier. I use rotten manure very liberally, but always trench it at least 6 in. below the surface. My plan is to trench the ground two "spits" deep, shovelling the loose earth out each time as well. I give two layers of manure—one in the bottom of the trench, the other when a spit and shovelling of earth have been laid over it.

Phloxes and Larkspurs.—I do not cut the stems of these over while the leaves are still green, but as soon as they decay they may be cut over close the ground. We have cut over the Larkspurs, but the Phloxes are still intact. See that the ground is kept clear of weeds, and that the hoe is worked amongst the plants when the ground becomes hard on the surface.

Tulips.—Ground for these must now be prepared, as planting time is at hand; the surface of the beds cannot be turned over too often when they are dry. Look over the bulbs and see that they are in good condition. Some sharp sand and good rotten turfy loam should be in readiness.—J. DOUGLAS.

Indoor Fruit.

Pines.—In order to maintain Pines in vigorous health throughout a long winter, it is essential that every ray of light should, if possible, act directly on the plants; they should therefore have plenty of space, be kept well up to the sashes, and the latter should be kept scrupulously clean; moreover heavy firing must be avoided, or they will draw up weakly—a stocky growth being ever the most fruitful—and, as the plants are to be kept near the glass, night coverings are indispensable. The labour of applying them is comparatively small, the benefit great, and the saving in fuel considerable. Frigo domo is the most suitable and economical covering I have yet found, and it can be had from the manufacturer's in any length or width desired. Swelling fruit may still have weekly supplies of guano water given them, but all other plants, whether in pots or planted

out, should now have only sufficient clear water to keep the soil moist, *i. e.*, neither wet nor dry.

Vines.—The finer weather that has lately prevailed, though sunless, has been drying, and has wonderfully assisted the ripening of Grapes, seeing that fire-heat could be applied with free ventilation. Such treatment should still be continued till the fullest maturity is ensured, and then there will be no fear that the Grapes will not keep, provided, of course, they belong to the late-keeping class, such as Lady Downe's, Alicante, Muscat of Alexandria, Mrs. Pince, Gros Colman, &c. As soon as fully ripe the only essential condition to good preservation will be to keep the atmosphere dry, and always a few degrees higher than the outside temperature, which will be certain to hinder the settlement of moisture on the berries. Inside borders should now be covered up either with mats or dry straw, and this covering will at once prevent the rising of damp and the necessity for further watering which is now undesirable. Earlier and thin-skinned varieties of Grapes are sure to keep very indifferently this season, seeing that both ground and atmosphere are surcharged with moisture, and therefore if there is convenience to put them in bottles it would doubtless prove a wise proceeding. They would keep well in any dry room from which frost and damp can be excluded, and in cutting them all the wood in front of the bunch should be left on, as this serves, as it were, as a safety valve to prevent too much water being taken up by the berries. There is also another reason why such Grapes should now be cut, and that is the well-being of the plants that have, in many cases, to be wintered in Vineries, and which, till the Grapes are used, have to be kept too dry. Plants and ripe Grapes cannot by any possibility be made to agree satisfactorily together. Vines that have shed their foliage should be at once pruned—indeed, we never wait for this, but as soon as the wood is hard and brown, and the foliage, so to speak, has put on its autumnal tint, then we prune, believing that early pruning tends to induce earlier rest; this done, the houses should be cleaned, and if necessary repaired and painted. The borders should then be top-dressed and mulched.

Peaches and Nectarines.—Keep the earliest houses as cool as possible in order to induce effective rest in the trees, which ought, ere this, to have had their final pruning or thinning out of the shoots. The borders must not be allowed to get dry, and as soon as the time arrives for starting the trees into growth water must be given them in a tepid state, and in sufficient quantity to soak every particle of soil. If the drainage be good there need be no danger of over watering; at all events, it is better to err on the side of giving too much than too little. Remove the lights from succession houses, and prune them also as soon as the foliage has fallen. Strong growers should have their roots disturbed by opening a trench a reasonable distance from the stems, and cutting off a portion of the roots, especially the strongest. This will have the desired effect, that is, repression of growth and more certain fruiting. From careful observation my impression is that we do not make our borders for Peaches and Nectarines sufficiently firm, as I have never yet seen other but fruitful growths on trees that are near walks or that have been left undisturbed in hard borders, except so far as relates to the application of surface mulching or manure waterings during the growing season. Hence, when root-pruning is necessary I strongly recommend that the trench made be filled in by ramming the soil as hard as possible; and in making the new borders the same rule should be observed, particularly in light soils; of course in stiff soils less ramming would be required. The trees in late houses are yet very backward as regards maturity of the wood; therefore keep the lights on and the air as dry as possible, applying fire-heat, combined with ventilation, when the weather is dry. A few days of such treatment will suffice to harden the wood, and then the house may be thrown open and the trees pruned as soon as the foliage has fallen.

Figs.—Trees in pots that were placed in the open air for rest ought now to be got under cover, but still kept cool; and those of them that are intended for early forcing should have 2 in. or 3 in. of the old surface soil removed, and replaced with rich compost, consisting of good fibrous loam, bone dust, and rotten cow manure. If summer pinching or stopping has been practised no pruning will be required unless the spurs are getting too crowded, and if such be the case they may now be cut off. About the middle of November it will be safe to start a first batch, and they will start all the more kindly if they can be plunged in a bed of fresh Oak leaves; not that bottom-heat is really essential to their success, but time is gained by its use at this early season. Trees planted out which have been cleared of fruit may now have more air when the weather is dry, and if the wood be still green artificial warmth would prove beneficial. The border must now be kept on the dry side, and air-moisture entirely withheld, so that in wet or very damp weather it will, for the present at least, be advisable to keep the house closed.—W. W.

Kitchen Garden.

As long as the present dry weather continues every moment that can be devoted to stirring the ground amongst growing crops will materially assist to consolidate a growth that will the more effectually carry them safely through the winter. Lettuces, Onions, Carrots, Turnips, and Spinach will all be much benefited by the bestowal of such labour. The weather is also most suitable for finally earthing up the earliest Celery, tying up a quantity of Endive for blanching, and moving and heeling in the same, either in frames or in some sheltered nook, where temporary protection can be easily applied. Root-storing can also—whilst the weather is dry—be more expeditiously done than when it is unfavourable. Salsafy, Scorzonera, and Beet ought now to be stored in dry sand in a cool shed, or else in clamps the same as Potatoes. Beetroot is sweetest if wintered where it is grown, but protection must be afforded it, which is sometimes inconvenient. Carrots we prefer to house and keep as dry as possible; the wet weather has caused some of them to split, and in storing pains should be taken to keep these apart in order that they may be used first. Parsnips should always be left in the ground till required for use, as the severest frost does not harm them in the least, and the difference as regards their flavour is much in favour of wintering them in that way. Jerusalem Artichokes are yet very puny and immature, and as they bear frost well they should be left in the ground for some time longer. Globe Artichokes ought now to be divested of all old stems; the ground about them should be cleaned and partial protection afforded the stools by means of old tan or Cocoa-nut fibre. Select a few of the most mature crowns of Seakale for a first batch, and other roots may be dug up and again heeled in to induce partial rest before forcing. Asparagus plots may now have a final clearance; cut the stems off to the ground line, then weed, and afterwards stir the surface soil with forks to a depth of 2 in. or 3 in., and the first hard frosty morning give a good dressing of the best manure available; of course those roots that are intended for the present season's forcing need not have manure applied to them. Cabbage, Coleworts, Cauliflowers, Lettuces, and Endive may all still be pricked out, selecting only the most sheltered spots in the hope of wintering them successfully. The unusual severity of last winter, by destroying so many of these kinds of plants, has after all proved beneficial in teaching us to be on the alert with protection for the coming winter. For the sake of neatness clear away all refuse vegetable matter as soon as the crop is exhausted, and let the ground be dug, ridged, or trenched as soon as it conveniently can be. Unfortunately, there is a disposition amongst us to let the kitchen garden take its chance, a feeling of some such sort as what matters it about neatness so long as the crops are good and supplies forthcoming. Young gardeners especially should guard against imbibing such a notion, for neatness ever stamps the character of a gardener.—W. W.

Extracts from my Diary.—October 27 to November 1.

FLOWERS.—Taking down *Clerodendron Balfouri* from roof of stove and placing it on balloon trellis for flowering. Tying small plants of *Azaleas* for forcing. Re-arranging plant houses. Potting old plants of *Alternantheras* taken out of flower beds for stock. Pulling up *Echeverias* out of beds.

FRUIT.—Digging up Raspberry suckers to make new plantations. Pruning early Peach house. Pruning Raspberries, and clearing all rubbish off the ground. Gathering Quinces, and storing them in fruit room. Getting pot Vines into Vinery preparatory to forcing. Going over late Grapes and cutting out diseased berries.

VEGETABLES.—Scrubbing, white-washing, and painting Cucumber house, and preparing for French Beans. Earthing up Celery when sufficiently dry. Trenching south border for spring cropping. Sowing Mustard and Cress. Clearing Pea ground and manuring it ready for digging. Sowing Osborn's Forcing French Bean in boxes. Gathering Scarlet Runners for seed. Planting Early London Cauliflowers, five under a handlight in sheltered corner. Tying, thinning, and stopping winter Cucumbers. Digging up roots of Mint and Tarragon, and placing them in boxes in gentle heat. Digging 10 lb. of Ashtop Potatoes from frames planted in July.—R. GILBERT, *Burghley*.

The Globose-seeded *Phænospërma* (*P. globosa*).—This is a very distinct new ornamental Grass, producing an erect tuft of broadly-lance-shaped leaves, which are bright green above and glaucous below, with prominent ribs. The panicles rise above the foliage, and consist of several whorls of branches bearing globose spikelets. It grows to the height of 4 ft. or 5 ft., and is a native of China.—G.

TIME TO SOW AND PLANT IN LATE DISTRICTS.

At one time gardeners adhered closely to times and dates in all their operations; but modern practice has shown that experience gained in one part of the country, or even in one locality, is almost useless in another, regarding the dates of sowing and planting. It is this fact which renders all calendarial instruction relating to these points of so little value in outdoor operations. In offering these few hints on the above subject, I had better explain that by "late districts" is meant such as are often found in high-lying exposed tracts north of the Trent and in Scotland. Our own district is a late one, lying on the northern borders of Derby and Nottingham, and to which the instructions generally given in reference to cropping of both farm land and gardens do not apply, but, on the contrary, would lead one very much astray. For instance, it would not do for us, nor for our neighbours, to plant the earliest Potatoes sooner than the beginning of March, and late crops are soon enough in by April; many large breadths are not, indeed, planted till May. Yet these late crops, I have noticed for many years back, are always good, and often the best; growth is not retarded but commences strongly at once. From what we have seen of Potato crops at different times throughout the north of England, I do not err, probably, in saying that April is the planting month for the greater portion of both early and late crops.

Another important garden crop is the Onion. Gardeners are very particular about the period of sowing this crop; and some good cultivators maintain that the main crop should be in the ground by the end of February, or, at the very latest, by the middle of March. These dates are right, no doubt for the neighbourhood of London and farther south; but in the north of England the crop is quite safe in many places if the seed be sown by the middle of April, at which date and later we have often seen it got in, and a good crop result. Early sowing may do in early seasons; but these are the exception, and not the rule. It is the same with Peas. Some sow in November; but little or nothing is gained by the practice, as may at any time be proved. Crops sown in February or March are scarcely behind November-sown crops; while it is certain that the same kinds sown in pots in March, and planted out in April or a little earlier, beat them, and the trouble of looking after the seeds for months, to preserve them from vermin, &c., is altogether obviated. In late localities no plan beats the system of sowing in pots. Seed is soon enough in the ground by February at the earliest; but the main crop of Wrinkled Marrows should not be sown till about the beginning of April. Here we find it needless to sow earlier, as the seed rots in the ground, and the later batch—which is sown from the beginning to the middle of May—is always the best, producing the finest crop. During the past spring the first crop of Marrows, sown at the usual time, mostly failed, or were at least a thin crop; but the same seed sown a month later did well. All the tall-growing and finer Wrinkled Marrows are much tenderer than the early round-seeded kinds—a fact not sufficiently borne in mind by inexperienced amateurs and cottagers, who sow all sorts about the same period; if late well, and if early with unfortunate results, and probably blame to the seedsmen.

Perhaps more lamentable failures occur in Carrot-sowing than in any other crop. There have been many complaints of failure this season caused in the majority of cases, no doubt, by the state of the ground. Carrot seed lies long in the ground before germinating at any time, and, if the soil happens to be cold for the season, as likely as not it will rot. We have heard of cases this year, both in the north and south, of crops being sown three times without success. In the north, April is soon enough to sow main crops; but seed may be sown till the middle of June in emergencies, and later if the Early Horn varieties are used. Turnips, on the other hand, are not at all affected by cold—that is, the seed. It will lie in the ground without growing, but will soon vegetate when heat comes. The worst thing about early-sown Turnips is their liability to run to seed, particularly when they experience a check by frost or cold after having germinated, as many early crops are almost sure to do. As to Beetroot, in favourable districts it is unwise to sow before April or May, as the plants are liable to run to seed, or to become rather stringy and hard by autumn—in other words to ripen; but here in our later clime, we may sow in March, and fear neither of these evils. In some late parts the season is not too long for Beet, which should be got in early in April, in order to secure good roots. French Beans are an uncertain crop in cold districts, and in late cold seasons like the present. Standard authorities recommend Scarlet Runners to be sown by the first of April, being harder than the French Bean, which it is said should be planted two or three weeks later; but here and elsewhere in the north it is found quite soon enough to sow the first at the beginning of May, and the Kidney Beans at intervals till the end of the month. Sooner than that it is seldom worth while to sow, as the seed simply perishes, and never attempts to vegetate. Until the ground reaches an average temperature of 50° it is almost hopeless to expect such tender seeds to germinate freely.

We now come to the important Cabbage tribe, and Cauliflower, Broccoli, and Brussels Sprouts in particular. It is safe and advisable to sow the first outdoor sowings of the former in a favourable situation early in February, putting in small quantities at a time, and at intervals of a week or a fortnight till April, when sowing once a month will be sufficient. Some gardeners sow their Broccoli twice—about March and again in April—in the hope of having a succession of heads during the ensuing winter; but we have tried the plan, and always found both sowings to come in at the same time. We therefore now sow the whole crop at once, and as early in March as possible, and plant out at the earliest opportunity. The latter is a far more important matter than the time of sowing, and a succession of crops may be ensured by employing a number of the best varieties that are known to succeed each other. As regards Brussels Sprouts, spring-sown crops cannot be got up and planted too soon. The longer the season these have to grow, the greater will be the crop. Some cultivators, realising this, sow in autumn, or in heat (like Cauliflowers); but that practice is seldom needful, and the plants are apt to run to seed. Under ordinary circumstances, spring-sown crops should produce Sprouts by the time they are needed and fit to use. They are not wanted particularly while summer Cauliflowers are plentiful and other summer vegetables abundant, but they form the bulk of the supply during the winter and spring months. Perhaps there is no more important crop than Parsely, which is wanted throughout the year. When the winter sowing fails through any cause, it is always an urgent matter to get up spring sowings quickly; but when the former succeeds it will generally afford a good supply till midsummer, or longer. The seed, however, takes a long time to vegetate—three weeks at least, even under favourable conditions of weather; so that it is always wise to get spring crops in as soon as the soil is in working order.

Coming to crops that have to be sown in autumn, the reverse rule holds good in late districts—early sowing should be practiced. We find that when early Cauliflower is sown later than the end of July, it is rarely so good as it should be by the time the plants should be under handlights and planted out; but in earlier localities sowing may be delayed until the 20th of August. Tripoli Onions and hardy winter Lettuces require to be sown as early as the Cauliflowers. Cabbages also need to be in about the same date. But though sowing early is advisable when the summer draws early to a close, early planting is not desirable. March frosts do much damage to early Cauliflower plants, and April is soon enough to plant out from the frames, and plants pushed on in pots should not be put out till later. That critical autumn crop, Prickly Spinach, should be sown twice. In late districts the beginning of August is a good time, but a later-sowing may be put in a little later, in case of a very mild autumn following.

J. S. W.

THE HEREFORD FUNGUS FORAYS AND FEAST.

THIS now-much-looked-for reunion came off this year in the first week of October, and, despite the partial inclemency of the weather and adverse character of the season, brought troops of friends to the mycological metropolis of Hereford. The promised visit of the eminent French mycologists, MM. Cornu, Quélet, and Emile Boudier, inspired a zeal in the chief English honorary members of the Woolhope Club to be present on the occasion, and in addition to Messrs. Broome, Cooke, Renny, Phillips, Spencer Percival, Vize, Plowright, Houghton, and other well-known faces. The venerable form of Miles Berkeley was hailed by the enthusiastic fungus-folk at the soirées and some of the excursions of the week. One of the most agreeable of the latter was to Cabalva, the residence of Mr. Broadwood, near Clyro and Whitney, just over the border in Radnorshire; another to the old rendezvous of Dinmore Hill; and, in spite of weather, persistent hunters brought back to Hereford vascula so well filled, as to ensure a more than average show of Agarics in the Club room. The great foray of the week was, however, that of Thursday for Foxley; and, though it opened untowardly, and the woods were hopelessly wet and unfavourable to the game in hand, even the stragglers and camp-followers must have been compensated for the walk to the top of Lady Lift by a gleam of glorious sunshine, affording a perfect panoramic view of west, south, and north Herefordshire. A knot of Woolhopians who, forsaking the scrutiny of mycologic treasures *sub pedibus*, pushed on from Lady Lift to the grand eyrie of Garnstone point, were rewarded by one of the most picturesque of near views, in a glimpse of the old world town and towering spire of Weobly, just beyond the underlying Garnstone Park and Castle, and opportunely framed for the occasion in a perfect rainbow. Seldom does the sightseer or hill climber find such account for his toil of feet and knees and hands; but in the valley below were nestled Herefordshire churches, such as Sarnesfield, where John Abel, the builder of so many characteristic black and white timber houses,

sleeps well and meetly in the churchyard, and between Garnstone Point and it the old typical timber-house of the Ley is seen to avouch him the architectural *genius loci*. The stragglers had to plod back through bracken, and over brake, bush, and scar, until by a precipitous and clay-sodden path, they reached in due train-time the Moorhampton Station, made their way back by railway to Hereford, and, after official business at the Rankin Museum, adjourned to the "Green Dragon" for the feast, at which the Woolhope President, Arthur Armytage, Esq., of Dadnor, presided. He was supported by the Rev. Miles Berkeley (the Nestor of Fungology), Sir William Guise, Mr. Pyper (the President of the Malvern Naturalists), Mr. Broome, F.L.S., and others. On such an occasion, as was meet, the tables were so arranged that guests from across the channel found nearest them the very Englishmen who could converse with them most facily in their own tongue, and Dr. Bull's praiseworthy endeavours in interpreting to the French cryptogamic botanists the enthusiasm of their English *collaborateurs* were admirably seconded by the finished grace of Dr. Steele's speech in the same language. Mr. Berkeley addressed the assemblage, which numbered eighty fungus-eaters, in a speech as full of instructive as of interesting matter germane to the occasion. The French guests severally responded; and in the course of the evening several excellent papers were read. Those who are curious to dive into the mysteries of these now familiar orgies will be glad to learn that of mycologic food or edible fungi only chopped and stewed Chanterelles were served, and that the possibility of casualties was minimized. Report averred, indeed, that the danger was either of starvation from cold dishes, or from defect of due attendance; but such was not our experience, beguiled perhaps "by the feast of reason and the flow of soul;" and, indeed, even if the bill was a true one, the excuse might have held good that but fifty gave in their names to dine, and upwards of eighty attended. After the sole toast in ordinary of a most loyal club and county had been duly honoured, and a few exceptions to the general rule allowed in compliment to distinguished guests, the intellectual food of the evening commenced in a paper by Dr. M. C. Cooke, "Croutes aux Champignons," into which was thrown all the humour calculated to gently wean a well-dined audience from grosser tastes and viands. Mr. Percival followed the lead in a lively and practical paper on the "Influence of Situation, Soil, and Season on the Growth of the Larger Fungi," the "three S's," as he christened them, of Fungology; and Mr. W. Phillips also read an equally practical paper on a subject which comes home to every householder, gentle or simple, "On the Fungi of our Dwelling House." This was illustrated by a fine specimen of the *Merulius lachrimans* brought from Scotland. Such papers might of themselves explain the *raison d'être* of the Hereford fungus feasts, their popularity, and the lasting success of the Woolhope Club; but as night drew on and the sojourners in the hospitable city felt the loss, one by one, of the friends who had come to welcome them from the country, the residue adjourned to the *soirée* of Mr. Cam, the excellent treasurer of the Woolhope, where other and more scientific papers were read by Dr. Cooke "On a New Genus of Discomycetes," and "Notes and Queries on British Hymenomycetes," and by M. Quélet on "Quelques nouvelles espèces de champignons trouvées en 1879 (Jura et Vosges)." On the previous evening at *soirée* at Dr. Bull's, Mr. Vize had read a very interesting paper on a singular and novel fresh water Alga, noticed by him in a pond within the park at Powys Castle near Welshpool, and the French guests of the club added to the interest of the evening by various papers, one of them also, M. Boudier, by some admirable drawings of curious French Agarics. We have said little of the museum, and its contents, arranged on tables as in former years, but it may be briefly said that most of the accustomed fungus forms were there, *Agaricus caesareus*, *fusipes*, *squarrosus*, *muscarius*, *velutipes*, *Lycoperdons*, *Hydnums*, *Pezizas*, and *Russulas* "of sorts," as the nurserymen might say, *Mushrooms*, and *Toadstools*.

Prickly and pulpy, blistering or blue,
Livid or starred with a lurid hue,
Agarics and fungi with mildew and mould,
Started like mist from the wet ground cold.

The "wet ground cold," however, did not seem likely to deter the chief visitors of the club from the Continent and the metropolis from prolonging their stay over Friday, when a large party of them were invited to make an excursion to the beautiful gardens and park of Holme Lacy, and to partake of the hospitality of Sir H. Scudamore Stanhope, Bart., besides inspecting the compliment to the French gardeners, which the owner, a scientific horticulturist himself, has paid them in adopting successfully on the walls of his fruit gardens the cordon system of fruit training.

J. D.

For woodland walks where gravel gets green and unsightly even a thin coat of ashes will provide a pleasant means of getting amongst one's floral treasures when wet, slippery soil would destroy all chance of doing so for at least half the year.—JAMES GROOM.

ROSES.

ROSE AVENUES.

THE Grass avenue in the nursery of Messrs. William Paul & Son, at Waltham Cross, must be well known to those who have ever visited that part of Hertfordshire, as one end touches the old coach road, and the other end the main line of the Great Eastern Railway to Cambridge. The avenue runs in a straight line east and west for nearly half-a-mile, and the look-out beyond in the direction of Waltham Abbey extends for another mile, where the eye rests on two large Lombardy Poplars and a range of wooded hills rising in the distance. It is crossed by five roads running north and south, reaching far into the depths of the nursery. The Grass path in this avenue is about 12 ft. wide, and at the outset there are on either side circular and oblong beds of Pelargoniums and Roses, with choice Conifers and other evergreen shrubs behind. After passing the first intersecting road the scene is changed. Here are belts of evergreens, composed of the choicest specimens, in which the golden and silvery tints abound in the shape of Aucubas, gold and silver Euonymus, golden Yew, golden Cypress, and Arbor-vite, gold and silver Hollies, many of the latter being handsome round-headed standards. The taller-growing kinds are arranged in the centre of these belts, with many of the most useful and attractive of dwarf evergreens, such as the various kinds of Cotoneaster, Daphne, Holly, Laurustinus, Ligustrum, Osmanthus, Raphiolepis, Skimmia, Yucca, and the like on either side. At the time we write the bright red berries on the Skimmias show in beautiful contrast, and are otherwise very attractive. At the next intersection we meet with another series of beds, where Roses and Rhododendrons are assigned their respective beds, supported behind with lines of pillar Roses. A few formal trees, as standard Hollies, now bright with their coral berries, standard Laurels, which in the distance might be mistaken for Orange trees, standard Portugal Laurels, and the like are introduced here. Another cross road arrests our attention momentarily, the sides being lined with pictorial trees and pillar Roses, and on passing onwards we find ourselves again enclosed in belts of evergreens. We soon reach the fruit ground, and looking to the right and left we see avenues of pyramidal fruit trees of considerable size, many of them, the Pears especially, laden with fruit. From this point are seen numerous beds of dwarf Roses, with lines of pillar Roses behind, which, being skilfully associated with standard evergreens, as Laurels, Box, Golden Yews, and Phillyreas, constitute a very uncommon and pleasing picture. Of the rows planted in separate beds the following are the principal sorts:—Of Hybrid Perpetuals, Alfred Colomb, Captain Christy, Charles Lefebvre, Countess of Oxford, Diana, Duke of Edinburgh, Etienne Levet, Fisher Holmes, Géant des Batailles (covered with beautiful flowers, October 21), General Jacqueminot, Glory of Waltham, La Brillante, La France, Louise Darzens, Madame Charles Wood, Mlle. Therese Levet, Maréchal Vaillant, Magna Charta, Marquise de Castellane, May Quennell, Paul Verdier, Peach Blossom, Prince Camille de Rohan, Princess Beatrice, Rosy Morn, St. George, Victor Verdier, Xavier Olibo. Of Tea-scented kinds there are Devoniensis, Homer, Madame Falcot, Madame Margottin, Marie Guillot, Sombreuil, Souvenir d'un Ami. The above are planted in circular beds, and

for the most part a bed of a sort has been planted with good varieties for massing. In the oblong beds there is a line of a sort of all the best Roses known. The pillar Roses behind and on either side of these beds are the strong-growing varieties of Hybrid China, Hybrid Bourbon, Hybrid Perpetual, Evergreen, Ayrshire, and Noisette. As the whole are pruned with the view of producing masses of good flowers rather than few flowers of large size, the effect of this grand avenue of Roses in full summertime can be easier imagined than described.



An Avenue of Roses.

Roses in Town Gardens.—Complaints have appeared from time to time in your columns regarding the failure of Rose trees in London gardens, that I am induced to give my experience for the last five years at St. John's Wood. The soil, to begin with, was the common clay and mould of most town gardens. I had it well mixed with a load of road scrapings, which cost me 3s. 6d., and in the autumn with a load of old manure. I brought from the country some dozen Rose trees on the Brier and thirty on their own roots, all young trees. The Rose trees on the Brier have all died gradually off, but I have not lost one on their own roots. I think your correspondents should take a hint from this fact as to the superiority of the endurance of Roses in our damp, smoky London atmosphere when on their own roots. I have what are called strong, vigorous Perpetuals, some of them 4 ft. high, and all in good condition. They have flowered fairly this summer, and the plants show well for the future. No one, however, must expect plants in London gardens to succeed by merely placing them in the earth and leaving them to chance; failure is caused I think by allowing the ground to be too much shaded with trees, and not drained enough. I prevent the latter by digging two spades deep in various places, and throwing in a spadeful of cinder ash; persevere in this way and you will have a fair chance of growing Roses. Lilies (particularly Lilium candi-

dum and Crown Imperials), Fuchsias, Chrysanthemums, Tritomas, Carnations, Gladioli, and various Perennials will all grow well in our London gardens if properly treated.

National Rose Society.—A meeting of the general committee was held, by permission of the Horticultural Club, at their rooms, Arundel Street, on Tuesday, the 14th inst., R. G. N. Baker, Esq., in the chair. The hon. treasurer, Mr. W. Scott, submitted his financial statement, from which it appeared that, after paying all expenses, there remained a balance at the bankers of nearly £130. It was then resolved that the outstanding liabilities to the prize winners for the year 1877, which they had kindly allowed to remain over, should be paid; there would then remain a balance of £60, and the Society is entirely free of debt. It was proposed also that the London exhibition should be held at the Crystal Palace, Sydenham, on July 3. An offer had been made by the Manchester Botanical Society that the provincial exhibition should be held there again, but it was determined that it should be announced that, in order to give opportunities to other localities, the committee would be willing to receive application from any other towns which might be willing to receive the Society. It was announced that Mr. R. G. N. Baker would give a cup, value £10 10s., to be competed for by amateurs; Messrs. Paul & Son a cup, value £10 10s., for Cheshunt-raised Roses; and the proprietors of the "Journal des Roses" a silver medal for twenty-four Roses, three of each, one full bloom, another

half bloom, and the third a bud. The meeting was most cordial, and general satisfaction expressed at the prosperous condition of the Society.

Gloire de Dijon Rose.—There are a few plants of which it may be said that they should be found in every garden, and amongst these may be placed the Gloire de Dijon Rose, the merits of which are too well known to need description. I would, however, desire to remind those who may have a spare piece of wall in a sunny sheltered situation, that they cannot do better than devote it to this glorious old Rose. The Gloire de Dijon is a vigorous grower, and flowers freely in the open air, but if afforded some protection against wind and rain, not only will the blooms be of superior quality, but they will be produced in good condition up to a much later period than when fully exposed to the vicissitudes of the autumn months. The buds and half-expanded flowers are invaluable for bouquets, and are doubly welcome at a season when Roses generally have become scarce.—J. CORNHILL.

Marechal Niel from Cuttings.—Cuttings of this Rose cut across immediately below a joint in the usual way callus freely, but the latter gets so hard that it soon cuts off all communication between the rootlets and the cuttings. To obviate this the method followed in the Handsworth nursery, where this Rose is grown in quantity, is to cut just above a joint, and then take a slice off the cutting, as one would do in making a graft, when roots protrude in abundance from each side of the incision, and a well-rooted cutting, without failure in any instance, is the result.—M.

THE KITCHEN GARDEN.

CAULIFLOWERS.

EVERYONE who has a garden endeavours to grow at least a few of this delicious esculent, but either from sowing at the wrong time or not treating them properly through the winter, they often turn out very disappointing, by what is technically called "buttoning," instead of forming those large, snow-white heads for which they are so deservedly prized. Except for the very earliest cutting to come in during May, I always find it best to sow a few seeds in boxes or pans about the middle of February, and place them where they can get a little heat to induce them to germinate freely. Plants raised in this way, and nursed on under glass, are far superior to any that stand about all the winter, for unless taken special care of they are at best only in a half-starved state, and it is these checks they receive that causes them to turn in prematurely. The next to succeed the first spring sowing made in the boxes or pans should be sown a month or so later on any gentle hotbed, between rows of Potatoes, or in a frame made up for the purpose of raising an early lot of Lettuce, Celery, Brussels Sprouts, and such like, where they can be drilled thinly in rows, and stand close up to the glass till they get sturdy and strong and fit for handling. My intention, however, is to treat of autumn-sown plants, such as are now in the seed-bed, or pricked out to stand the winter, which, unless in very sheltered situations, are sure to be destroyed by frosts or cold, cutting winds. The plan we adopt, and it is one I can strongly recommend, is to take them up and pot them in 3-in. pots, using a very light, rich soil for the purpose, such as leaf-mould, loam, and rotten manure, in about equal parts of the two former to one of the latter. In this they root freely, and form such a compact ball with their numerous fibres that they may be turned out in the open quarters in March without the slightest disturbance, or the plants suffering a check in any way. To keep them during the winter, there is no place suits them better than a cold frame, where they can be plunged in half-rotten leaves, and have plenty of air whenever the weather is at all favourable. Such a congenial, non-conducting material for the pots to stand in maintains a uniform condition as regards warmth and moisture at the roots, and prevents frost penetrating sufficiently deep to injuriously affect them, for if kept dry, the tops will bear severe cold without taking the least harm. The proper way to admit air is to tilt the lights behind, as then any rain that falls is thrown off, and all draughts or sharp currents are avoided. Unless during a continuance of very sharp frost, covering is not required, and then only just enough to break its full force, as the harder they are kept, and the less coldling they receive the better, and more satisfactory will they turn out. If a warm sunny border can be spared to plant them in, towards the middle of March they may be turned out without risk, and at the end of that month in any quarter of the kitchen garden. Cauliflowers, being, like all the rest of the Brassica tribe, gross feeders, should have plenty of manure worked in the soil previous to planting, and drills drawn for the rows that they may stand below the general level of the ground, so as to be easily watered with sewage directly they get a fair start. With warm weather, it is astonishing what a help this is to them, and how succulent and fine they

always are when well fed with liquid impregnated with manurial matter. As regards those being wintered under hand-glasses, the only way to prevent buttoning is to keep air nearly always constantly on by tilting the top of each glass with a brick; or, better still, by placing them across the corners of the lower half, as then the ventilation they receive is much more regular and perfect. The great secret in wintering young Cauliflowers successfully is in keeping the leaves and hearts dry, and the plants sturdy and strong by a full exposure to light, and without being confined in the way many usually are. The best sorts for spring work are the Early London and Walcheren, the latter being likewise equal to any for turning in during the summer, to be succeeded by that grandest of all autumn Cauliflowers—Veitch's Giant—that never fails in producing immense heads, firm, and well protected from the frost by the close hearting over of the leaves. Any of these now coming in may be kept for a long time laid in by the heels in any light open shed, where they can be protected by having a mat thrown over them at night. S. D.

STORING ROOTS FOR WINTER.

LIKE other produce, most kinds of roots are late in coming to maturity this autumn. Were it not for the danger of being injured by frost, many of them might be left in the ground until the greater part of November was over; but as this would hardly be safe in such a season as the present, no time should now be lost in seeing to the storing of all roots which require protection; of these Potatoes must, of course, head the list. Different modes of storing these are often recommended. Some stack them up in pits, and cover them over with straw and earth; others keep them in sheds, cellars, and similar places, and I decidedly prefer the latter plan, as any kind of root so liable to disease as the Potato should always be stored where they can be conveniently looked over weekly if necessary. Frost must also be entirely excluded. We keep our Potatoes during winter in excellent condition in a shed arranged in much the same way as a fruit room, deep shelves being placed one above the other. Light can be let in when wanted to facilitate the work of looking over the tubers, or the holes can be stuffed up to exclude it, which is necessary in order to keep the roots from becoming green.

Any dark shed or cellar will answer the purpose as well as our Potato house. The roots may be placed on the top of one another to the depth of 1 ft. or more, and when looking for diseased ones this mass should be turned over. When there is danger of frost touching them, they should be protected by straw or hay, and in a place where they cannot be kept quite in the dark, this covering should remain on them always. A hot place for storing all kinds of roots should be avoided. A temperature of 45° will be found quite high enough, and 10° less than this will do no harm; but should it rise to 55° or 60°, growth will soon begin, and no roots start more readily than Potatoes, or are more injured by so doing. All that is required to preserve Potatoes during winter, or for the next six months, may be briefly summed up as follows: Keep them in the dark, in a temperature from 35° to 45°, in a place where they can be looked over weekly. Seed Potatoes may be treated differently. We never trust to what are left over in spring for planting; on the contrary, all our seed is selected before any of the Potatoes are stored away. Those about the size of a small hen's egg are what we like best for seed; and instead of keeping them in the dark they are spread out thinly in any place fully exposed to light. Under such conditions they do not so readily start into growth, or make long white growths so injurious to seed Potatoes when kept in the dark. As in the case of other Potatoes those for seed must be kept cool.

Late sown Turnips of the Chirk Castle and Golden Ball type need little storing in winter, as they are very hardy and keep as well in the ground as anywhere, but when severe weather is expected a quantity of them may be taken up and stored in any shed or out-house. A little straw thrown over them will keep them fresh. Turnips full grown now, and which would be likely to rot in the ground if left after this time, should be taken up at once; the leaves and tap roots should be cut away, and they should be stored in a shed. If there is a quantity of them one half may be put into a triangle-shaped ridge-pit out-of-doors. They must be kept dry and partially in the dark as well as being kept cool, but in every way they are easier kept than Potatoes, at least they will take no harm should they get less attention.

Beetroot if not already taken up should be lifted now. Great care is necessary in doing this as no root or rootlet should be broken if it is desired to have the roots full flavoured, juicy, and sweet. Any breakage causes the sap to leak out and this spoils the root. A fork must be used in taking them up and the leaves must not be cut in nearer to the crown than 3 in. After being taken up they should be spread out thinly under cover to dry, after which they may be stored in any cool dry place. In order to keep them from

shrivelling they should be covered over with dry sand or earth. We generally keep them in a square heap, beginning with a layer of roots packed closely together all over the bottom, then a layer of sand, roots and sand again, and so on until all have been covered.

Parsnips we hardly ever lift out of the ground, as we find them to keep as well in it as anywhere else. As soon as the leaves decay they should all be removed, or they may cause the crowns to rot. Before severe weather sets in a quantity may be lifted ready for use, and those left in the ground may have a layer of straw, leaves, or Fern, put over them.

Carrots should be taken up and treated like Beetroot, except that the leaves may be cut closer into the crown. Late-sown ones, which are intended to be used young, may be left in the ground, and covered over in severe weather like Parsnips.

Onions keep well in any dry room either roped or otherwise. In all cases the roots should be dry before they are stored in any close place, as on this chiefly depends their keeping well; and no roots, especially those in heaps, should be left too long without being looked over, as when one begins to rot the others quickly become affected.

CAMERIAN.

CHAMPION AND MAGNUM BONUM POTATOES.

I AGREE with Mr. Knight (p. 349) that those who planted the Champion Potato this year will not have much cause to regret having done so. It has done well here, and, as far as I can learn, with everyone in this district who has planted it; but I should say that the weight of the crop is more than thirty tons per acre less than that in Mr. Knight's case; but surely he has made some mistake about even forty tons being obtained from an acre. For my own part I candidly confess that I do not believe there ever was such a crop of Potatoes lifted from the ground, and I am not alone in this belief hereabouts. Forty tons per acre would be equal to a ton from eleven square yards, or sixteen lines 2 ft. apart and eleven yards in length, and each line would require to contribute $1\frac{1}{4}$ cwt. This I venture to assert is incredible with from eight to twelve Potatoes at a "shaw," and I am the more convinced of this as a few days ago I superintended the lifting of two lines of Magnum Bonum Potatoes, which were 23 yds. long—more than twice the length than they would require to be in Mr. Knight's case—and these lines averaged 1 cwt. 20 lbs. and sixteen Potatoes to a "shaw." In some cases more were frequently dug up, and every one fit for table. Each line was 3 ft. apart, and the sets were about 18 in. asunder, and in lifting the crop, when putting in the fork the greatest care was required not to injure the tubers. It will be seen that these lines occupied 2 yds. by 23 yds., or 46 sq. yds., and the weight of the crop was 2 cwt. 40 lbs., this would be equal to 11 tons 5 cwt. per acre of marketable Potatoes; the small ones were not weighed, as they were a mere handful and not worthy of being taken into consideration, and no diseased ones were to be found amongst them. Granting—though I am not inclined to do it—that I might have had a third more of the weight off the same piece of ground by planting 2 ft. apart instead of 3 ft., the result would only have been 15 tons per acre, and these, at £5 per ton, would have been £75 per acre, but Mr. Knight must have realised £200 per acre. As to the size of the Magnum Bonum I might add that a great many of them weighed $\frac{1}{2}$ lb. each, some $\frac{3}{4}$ lb. [Bolls, not tons, were meant. I have no doubt, however, that our crop will yield sixty bolls.—H. K.]

Strange as the circumstance is I can endorse "A. D.'s" statement about the foliage of the Magnum Bonum having died here before the tubers were ripe, a statement which "J. S. W." seems to doubt—the tubers, when I lifted them, were not ripe though the foliage was completely gone and the stems in a good many instances dried up. Paterson's Victoria and White Rocks are quite two-thirds diseased, while the seed has not been left of Regents and Snowflake. The Magnum Bonum and Champion are the only two sorts that have resisted disease here.

JAS. FAIRWEATHER.

Hobson.

I can bear out Mr. Knight's statement (p. 349) regarding the immunity from disease of the Champion. We have just lifted a large quarter of it and not a vestige of disease is observable on them. The soil is a deep sandy loam. We have also just lifted another quarter of Magnum Bonum in which no disease is observable, while some twelve other sorts, growing in the same field, are all more or less diseased. —JOHN DOWNE, *Corstorphine, near Edinburgh.*

The Champion Potato.—I cannot speak so favourably of this Potato as Mr. Knight (p. 349). In the spring of 1878 we had a quantity of seed of it direct from one of the principal Potato dealers in Scotland. Last year, when many kinds of Potatoes were free from disease, the Champion was also quite free from it, but this season, when a variety free from disease is a rare exception, about a quarter of the Champion crop is diseased. Magnum Bonum, growing on the

same quarter, has been quite free from disease, and there are several others with us this season which stand before Champion in this respect. Admitting that Champion is a good disease-resisting kind, its extra deep and numerous eyes will, I should say, be against its becoming a favourite.—CAMERIAN.

Magnum Bonum Potato.—"J. S. W." (p. 349) entirely misapprehends what I wrote as to the haulm of Magnum Bonum dying off before the tubers were ripe. I referred to the fact that the leaves had gone under the influence of the disease as those of others had, but still there was no disease in the tubers, the stems having decayed prematurely because the leaves had fallen before the Potatoes were ripe. Surely "J. S. W." must admit that hardly a single tuber of any sort has during the present season ripened properly; on the contrary, they have ripened prematurely, because the disease had promoted in the leafage premature decay. Just what Mr. Knight, of Floors, says respecting Champion, I have said regarding Magnum Bonum, and if proof of what I have stated were wanted in addition to my own and market growers' experience of it, it may be found in a statement made in a contemporary to the effect that Mr. James Golden, of Woodstock, a grower whom I know well, has just lifted 500 sacks of it quite untouched by disease. Is not that, this season, a marvellous experience? I am glad to perceive that Messrs. Sutton have, in their new white round seedling from the same raiser, yet another kind even superior to Magnum Bonum in quality, that has this season been absolutely untouched by disease.—A. D.

AMERICAN NOTES

Smalley's Early Defiance Asparagus.—There are those who deny that there are any varieties in Asparagus, and found this opinion upon the fact that Asparagus has its sexes separate in different plants. We do not see why this should hold in Asparagus and not in Hops and Persimmons, the two cases that now occur to us of dioecious plants well known as having varieties in cultivation. That there are varieties of Asparagus sufficiently unlike to make some more desirable for cultivation than others we are as well convinced as that there is a difference in Cabbages, though the difference is not so striking. The young, year-old plants of Smalley's Defiance, or of Colossal, are very different from the common, and we have a kind in the garden for which we have no name, that is entirely distinct at all stages from either. We have been familiar with Smalley's variety for two years, and feel sure, that in earliness and in excellence of flavour, as well as in the proportion of each shoot that is tender and eatable, this variety is sufficiently distinct to make it desirable for both the home garden and for market. We have not mentioned size, as this, more than any other character, may be produced by high culture, but in this it will compare favourably with any other variety.

The "Welcome" Grape.—Mr. Ricketts, of Newburgh, N. Y., whose marked success in producing new varieties of hardy Grapes we have frequently referred to, has experimented with exotic Grapes with no less gratifying results. We recently saw and tasted the Grape to which he has given the expressive name, "Welcome"! as that must have been his thought when he first tasted its fruit. It is a cross between one of the Hamburgs with one of the Muscats, we have forgotten precisely which. The result is the best exotic Grape we have ever tasted. The late Mr. A. J. Downing described one of our native Grapes, the "Elsingburgh," we think, as "little bags of wine," and we know of no better description for the "Welcome" than to say that its berries are "large bags of wine." They are about the usual size and colour of the Black Hamburg, but there all likeness ends. The berries are without pulp or flesh, but melt away in a rich juice, with a refreshing quality, as delightful as it is rare. This Grape must be "Welcome" to every Grapery, and take the highest rank among exotic Grapes at home and abroad.

The Large Cone Flower.—We have for some years had in the garden a southern and south-western species, *Rudbeckia maxima*, or "Large Cone-flower," which is so much unlike the other species that we call attention to it as desirable where there is room for such subjects. This species, extending from Arkansas, its northern limit, through Louisiana to Texas, and being a peculiarly southern species, we are rather surprised to find it hardy; as it has stood the past three winters without protection, we may regard it as hardy for the climate of New York City. The aspect of the plant is quite different from that of any of the more familiar species; while its specific name, *maxima*, indicates that it is large; it is without the coarseness that belongs to the others. The stem, which, according to Nuttall, its discoverer, reaches 9 ft., is with us about 6 ft. high, and simple or sparingly branched above. The leaves are generally ovate, the lower on long petioles, the upper sessile and more or less clasping the stem; all have that peculiar green colour known as glaucous,

or sea-green, of which we have a good example in the Cabbage-leaf, and which gives to this plant one of its most striking characters. The flower-heads are either solitary, at the end of the stem, or the stem branches above and has the heads of flowers on naked stalks 15 in. or 20 in. long. The flower-heads are striking, on account of the peculiar shape of the brownish disk, as the central portion of the flower-head is called. In most of the Composite family the central portion is flat or convex, as we see in the common Sunflower, while here it becomes conical and extends upwards to the height of 1 in. or 2 in., projecting above the few long yellow rays which soon become drooping. Now that the plant has proved to be hardy, its tall stature, its neat glaucous foliage, joined to the peculiar appearance of its flower-heads, will make it desirable in gardens, either in isolated clumps or at the rear of other plants.

Fruit-Preserving Powders.—When fruit preserving powders were first introduced several years ago, we examined into the matter carefully. We are assured that the composition is not essentially different from what it was then, and what was said concerning them at that time is equally true now. The composition of these powders was given to us in confidence, and we are not at liberty to state it. It is a natural product found in several parts of the world, and though it possesses preserving qualities in a much more striking degree than common salt, it is, unlike that, with very little taste, and so far as medical authorities have discovered, it is not known to exert any manifest effect upon the animal system in large doses, while in the small quantity used in preserving fruits, &c., it is, so far as known, practically inert. We have tasted fruits and cider treated with these powders—and have found them well preserved and without unpleasant taste.

Broad-leaved Uniola (*Uniola latifolia*).—This is found from Pennsylvania and Illinois, southward. It grows 2 ft. or 3 ft. high, and has a large, loose panicle, bearing large flattened spikelets, and, when full grown, 1 in. or more long. This Grass seems to be but little known abroad, at least we do not find it mentioned in the recent works on perennial plants. A clump of this Grass in rich garden soil gathers strength from year to year, and when well established is a beautiful object. The loose, drooping panicles have a wonderfully graceful expression when living, and this is not lost when added to a winter bouquet.—*American Agriculturist*.

Common Virgin's Bower.—This lovely Clematis, now in all its glory, draping trees, and spreading over bushes, banks, and rocks, is a common wild plant, to be sure, but there are few more comely garden ones. It grows readily from transplanted roots, layers, and seeds, and for festooning old stumps, fences, and trellises it is admirably adapted. The nakedness of some of our country homes is hardly in conformity with this progressive age, and this is the more to be regretted when we know our woods and waysides teem with plants as fitly suited to adorn a palace garden as to enrich a farmer's yard. The Climbing Hempweed, Ground-Nut, Trumpet-Creeper, Climbing Fumitory, and Wild Balsam-Apple are good examples of common wild but ornamental climbers.

A Butterfly Flower Bed.—Near the rockery in Forest Hill Cemetery is a carpet flower bed, the groundwork being mostly composed of Mexican Cotyledons, and on which, in embroidery fashion, is defined a large and beautiful butterfly, the horns, eyes, long body, and expanded spotted wings all being handsomely and truthfully delineated with such plants as *Alternantheras*, *Cotyledons*, *House-leeks*, *Cacti*, and the like.

Night-blooming Plants.—We all know about the Night-blooming Cereuses, the fragrant Evening Jessamines, and the showy Evening Primroses; but it is not generally known that the long-flowered Tobacco Plant (*Nicotiana noctiflora*), and others of its class are among the brightest and most profuse of evening flowers. Their colour is white.

Japanese Ivy on Tomb-stones.—*Ampelopsis tricuspidata* is being extensively planted hereabout, and although it is one of the best and most appropriate climbers for covering buildings, fences, old stumps, or anything it can cling to, there is certainly a limit to its use. It is not without a feeling of deep regret I see it extensively used in our cemeteries to cover head-stones and monuments. The "Ivy" is planted at the back of the head-stones and encouraged to cover them all but the lettering in front, and even costly and elaborately-carved monuments are being ruthlessly buried in the same fashion.

The Chinese Yam.—*Dioscorea Batatas*, the Chinese Yam or Cinnamon Vine, as it is often called, is one of the best climbers I have tried for high and dry exposures. The Yams bury themselves so deeply in the earth as in a measure to escape the evil of drought. At any rate, we are growing it this year in one of the driest spots of the garden, at the base of a wall, and where all other climbers, except Hops, Mignonette, Vine, and *Rumex sagittifolius*

have almost refused to grow, and in point of thriftiness the Yam surpasses all others but the Hop, which, though taller, is spoiled by insect pests—the Yams are not.—*Rural New Yorker*.

Weeping Privet.—The Weeping Privet (*Ligustrum vulgare pendulum*) has not received due credit. It is unquestionably a fine tree. I confess, however, that it did not impress me favourably for a year or two, as I knew it in the form of one specimen. Its long pendent branches and narrow leaves grew in very unkempt fashion. In other words, its habit was irregular, and not at all pleasing. Yet pruning makes it an entirely different tree. Symmetrical after pruning as well as pendent, it becomes one of our best weeping deciduous trees. But with nearly all trees and shrubs beauty of form and even colour depend greatly on intelligent pruning. Let me refer with due admiration to the fresh vigorous foliage of the Weeping Privet, which, like most of its relatives, it retains in full health until late in autumn.

The Moonseed.—Few realise the attractions of the Moonseed (*Menispermum canadense*), but why I cannot say. It is hardy and should be well known, for it is an old plant of excellent qualities. The way in which the vigorous, broad, heart-shaped leaves fold closely over each other is very curious as well as ornamental. It is, moreover, a very strong grower, easily propagated, and therefore cheap. It is, however, only another instance of a good old plant apparently doomed to neglect.

The Cut-leaved Sumach.—The changing colours of autumn again remind us of the peculiar attractions of the Cut-leaved Sumach (*Rhus glabra laciniata*). Many roadsides glow at this season with the common Sumach, but the same deep colour on the Cut-leaved variety is combined with the most delicate and lace-like divisions of the leaf. The very irregularity of the Sumach has such special charms that pruning fails to improve even the Cut-leaved variety, unless it be to curtail the dimensions of some overgrown specimen. All the Sumachs—*R. glabra laciniata*, as well as the beautiful new Chinese *R. Osbecki*—belong on the outskirts or points of large shrub groups, where their peculiar form and colouring may be fully evident. Colour and irregular form alike make them prominent in such positions. If it is desirable to form them into masses—and it is often very desirable—they should be planted entirely by themselves on some hillside or slope. The way they are gathered together in their favourite haunts suggests the proper manner of arranging them. It is a mistake, however, to think that any soil will suit the different varieties of Sumach, simply because when wild they grow freely and abundantly. They like good loamy soil, and certainly, in all ways, deserve to have their likings considered, for as lawn plants in the autumn of the year few shrubs excel them.

Euonymus alatus.—This Japanese shrub has received its name *alatus* (or winged) from the peculiar ridges or wings that extend down the sides of the stem. These wings are sometimes enlarged to a striking degree, and are quite visible at some distance. The leaves resemble those of European *Euonymuses*, and also (more or less like European varieties) their autumnal colours are resplendent with red, deep orange, and yellow. Clusters of fruit, usually of marked character on the different *Euonymuses*, are small and almost insignificant on the *alatus*. A very distinctive peculiarity of this *Euonymus* may be noticed in the curve of its branches. They bend outward in a very decided and graceful manner. This habit is so distinct that it is the first peculiarity noticed in this plant. *Euonymus alatus* is a new variety, at least to the public. Lavallée describes it in the catalogue of his arboretum, and ascribes its early botanical description to Thunberg. Indeed, he gives *E. Thunbergi* as one of its synonyms. The *Euonymus* family is so attractive in all its forms that another distinct species or variety possesses a peculiar value. We are sure if lawn planters would mass all the varieties together in a single group on the lawn, their effect upon every one would be alike novel and charming.—*Countryside Gentleman*.

CORAL SEA-SHORE VEGETATION.

ONLY a few in cold climates have any idea of the great beauty of a coral reef as seen in tropical seas from a boat on a fine day, when the sea is calm. The different objects seen through the clear water are so numerous and varied, their forms so beautiful and wonderful, and their colours so bright and pleasing, that it is impossible to portray them in a manner which would convey a just idea of their grandeur and loveliness. Even the accompanying illustration—good though it be—falls immeasurably short of the reality. But it is not the sea to which I am desirous of calling attention; it is the land forming these far-away shores and the plants growing thereon. How delightful is a walk on these shores, over the white sand, shaded from the fiercely hot tropical sun by such trees as *Barringtonia speciosa*, *Hernandia peltata*, *Calophyllum inophyllum*, *Pongamia glabra*, *Cordia*

subcordata, Ochrosia parviflora, Terminalia Catappa, Pandanus odoratissimus, Cocoa-nut Palms, &c., and such shrubs as Scaevola Koenigi, Tournefortia argentea, Cerbera Odollum, &c., creepers and climbers innumerable, all growing higgledy-piggledy, the one on the top of the other. On the swampy parts of these shores grows the curious Mangrove, sending out numerous adventitious roots from its branches, and gradually advancing on the sea, on stilts as it were, and, by entangling mud, &c., among its roots, reclaiming land from the stormy waters. The seeds of the Mangrove do not lie down when on a voyage, they swim upright, and so, when they touch the shore, they are in the best position to take advantage of this circumstance, and if the shore be favourable (i.e., soft and muddy) there they remain. Each inflowing and outgoing wave shakes the seeds to and fro, and the more they are shaken the deeper and firmer do they sink into the mud, until only about 3 in. of them remain above it. Then the water does not disturb them, and they emit roots and grow. These salt-water marshes are the abode of the Acrostichum aureum, of the scarlet-flowering Lummitzera coccinea, the "Looking-glass Tree" (Heritiera littoralis), whose seeds are shaped like the bottom of a boat, including the keel. Several species of Mucuna, Deris, and other climbers, grow on the borders of these swamps. They scramble over the tops of the Mangrove, binding the branches together in a tangled mass.

But to return to the coralline beach. The Calophyllum Inophyllum (Takamahaca—Takamaka) is not a lofty-growing tree, but it has a wide-spreading head of dark, bright green leaves, which glitter in the sunshine. Its limbs are large, and its foliage gives shade to numbers of epiphytes which grow on the tree. Among them may be seen several kinds of gay flowering Orchids (Dendrobiums &c.,) growing within reach of the salt spray; also such Ferns as Neottopteris Nidus, with fronds as large as the leaves of a Banana, various Aspleniums and Davallias, having finely and delicately-divided fronds. Lycopodiums, such as L. Phlegmaria, squarrosus, verticillatum, &c., hang tassel-like from every branch, and creeping Polypods and climbing Aroids cover the trunk. The flowers of the Takamaka, which are as white as snow, are produced in great profusion, and contrast finely with the dark green leaves. Those of the Barringtonia are about 3 in. or 4 in. in diameter, and have large rose-coloured petals and stamens; this tree is well known as a fine-foliaged plant in hothouses, where it seldom flowers. Its four-angled seeds are used as floats for fishing nets, and, from their resembling the square caps worn by priests, they are called *Bonnet carré* or *Bonnet de Prêtre* by the French. Guettarda speciosa bears white flowers whose fragrance perfumes the air. With the seeds of the Cordia subcordata, a handsome tree which grows to the size of a Plane, the natives of the islands in the Coral Seas make necklaces. They use its bright yellow flowers strung—*faute de mieux*—on a piece of tough climber for wreaths, &c. For the same purpose they use the gay flowers—especially sweet-smelling ones—of many other plants, and make crowns and coronets with fronds of Ferns, particularly those of Lygodiums and Lycopods. The leaves of the Terminalia change from green to a reddish colour before they fall, and add a variety of tints to the scenery. The flowers of the Pongamia are blue, those of the Ochrosia white, with a red spot at the mouth of the corolla tube. Hernandia is a well-known hothouse plant, the flowers of which are seldom seen in this cold country; but, as their beauty is not great, there is not much on that account to regret. But without them there would be no fruit, and the fruit of the Hernandia is in some respects a curiosity. After flowering, the involucre swells to the size of a turkey's egg, leaving an aperture $\frac{1}{2}$ in. wide at its apex. The seed hangs inside the bladder-looking involucre like the clapper of a bell. The deeply-lobed leaves of the Bread-fruit tree, and those of the Cocoa-nut Palm and Pandanus give change of outline.



Coral Bottomed Lagoon.

The home of the Cocoa-nut tree is the coral islands of the Pacific Ocean, but no one knows the island from which it emigrated. It has now made itself a home on the shores of all tropical countries, but it does not thrive well beyond 18° or 19° of latitude north or south of the Equator. From Pointe de Galle to Colombo, in Ceylon, the road for seventy-two miles is through an enormous grove of Cocoa-nut and Bread-fruit trees. There, as in many other places, it is all and all to the inhabitants. In favourite abodes it often grows to a height of 80 ft., and probably reaches a hundred years of age, bearing large crops of nuts annually for about eighty-five or ninety years, averaging one hundred nuts per tree per annum during that long time. Cocoa-nut milk—the watery fluid contained in the green nut—is an excellent cooling and refreshing drink; in cool mornings it sparkles and fizzes not unlike soda water.

Towering above the Cocoa-nut trees, or mingling with their leaves, are the boughs of the Terminalia Catappa, the country Almond of India, so called from the resemblance which the taste of its seeds have to that of the last-mentioned fruit. The natives like this Almond tree, and plant it near their dwellings; its foliage affords them shade from the noon-day sun, and its nuts food. From the kernels of these they also make bread. High above all the other trees that grow on the shores of these islands, which may be said to own their existence above mother ocean to the work of countless insects, the Casuarina equisetifolia, "Filao" or "Vilao," raises

its spire-shaped head to the height of one hundred and eighty feet from the ground. Its leaves and branches moan when moved by the breeze as if weary of existence; truly their sound is weird and dreary. But here is Ipomæa pes-capræ creeping over the coral sand, which it covers with a green carpet; its flowers are large, bright purple coloured, and truly handsome. It is seldom seen in hothouses, even in botanical collections of plants. It thrives best in soil in which there is a good deal of lime or saline matter. With plenty of moisture within reach of its roots, it would grow admirably among lime rubbish pure and simple, finely sifted, or a half-and-half mixture of lime rubbish and leaf-mould would suit it perfectly. J. H.

The Phylloxera.—The report of Mr. Vice-Consul Hayes Sadler on the trade of La Rochelle contains some interesting facts. The

French districts attacked by the Phylloxera may be divided into two great blocks, the one embracing the valley of the Rhone, the neighbouring departments, and the shores of the Mediterranean, where the Phylloxera first appeared; the other, in the west, including the departments, or portions of the departments, of Charente, Charente Inférieure, Gironde, Lot et Garonne, Lot, Corrèze, Dordogne, Deux Sèvres, and Vienne. It is worthy of remark that those arrondissements are most completely devastated where the introduction of foreign Vines or those from other infected places was permitted. The brandy districts of Saintes and St. Jean d'Angely, and, indeed, the whole brandy district of the Charente, as well as the departments of Var, Gard, and Bouches du Rhône, are scarcely able to furnish sufficient brandy for local consumption; and, as no fresh plantations of Vines are being made, the whole character of the country will shortly be changed. The Phylloxera is not the only scourge that has been playing havoc with the Vines, for the pyrale (Pyrallis vitana), a most destructive caterpillar, has been doing great damage to the buds and young leaves, and is increasing greatly. The gribouri, or escrivain (Eumolpus vitis), a beetle with reddish brown wings, has also been killing the roots in some departments.

Mice v. Grapes.—All who grow Grapes under glass may not know that if mice get access to the house they attack and destroy the finest fruit. I saw the havoc that was being wrought among the bunches, but as I had taken the precaution to have the ventilators left a little open at night to prevent mildew, I placed the mis

chief done to the account of the sparrows and finches, for of these we have any number about the place. However, the other day I discovered my error. The Vinery, having frames and lights in front to cover the roots, the mice had burrowed down, got into them, and therein made a home. The aperture in the brickwork for the admission of the stems into the house served as doorways for them, and to my mortification pretty good use they have made of them.—M.

ANSWERS TO CORRESPONDENTS.

Green Fly on Chrysanthemums.—I have some very fine Chrysanthemums which are coming into flower; they are very much covered with green fly. Would smoking them with Tobacco do them any harm? or do you know what is the best thing to kill the fly?—*SUBSCRIBER.* [Smoking with Tobacco will kill the green fly and not injure the Chrysanthemums.]

Bouquet Dahlias.—Kindly furnish me with the names of the best twelve of these.—*YORKSHIRE.* [The following may possibly answer your purpose, viz., Amorette, pale yellow; Clemetine, delicate pink; Dr. Webb, rich scarlet; Flambeau, bright crimson; Little Beauty, pure white; Little Dear, bluish, tipped rose; Little Lydia, golden yellow; Little Nigger or Raphael, dark crimson; Little Snowball, pure white; Little Willie, flesh; Peasant Girl, white, with a carmine centre; Sacramento, yellow, tipped with scarlet. Now is the best time to get them, as you make sure of obtaining good roots. In spring cuttings recently struck are often substituted.—J. O'B.]

Rhododendrons.—What are the best hardy Rhododendrons for planting in clumps? This (Stow-on-the-Wold) is a very exposed situation, so the varieties should be quite hardy.—*T. W. S.* [The following are thoroughly good and perfectly hardy, viz., Blandyanum, scarlet; Kate Waterer, rose; John Waterer, scarlet; Lady Cathcart, rose; B. W. Currie and the Warrior, scarlet; Everetianum, lilac; Gloriosum, the Queen, Madame Coralbo, and Perspicum, white; Nero, purple; Mrs. John Waterer and Lord Palmerston, rose; Robert Waterer, scarlet; Mrs. John Penn and James Mason, rose; John Walter and Helen Waterer, scarlet; Duchess of Edinburgh, rose; Joseph Whitworth, dark purple; Crown Prince, rose; Alexander Adie, scarlet; Album, Triumphans, white.—J. WATERER, *Bagshot.*

Grapes Cracking.—My Grapes, I see, are beginning to crack. How can I prevent such a mishap?—*BETA.* [Where cracking takes place in a well-ventilated house, the cause is, in all probability, a wet border. Some kinds, such as Madresfield Court, are more liable to crack than others, and require careful management when ripening. Where cracking is apprehended cover the border outside with a waterproof covering to throw off heavy rains. If this does not have the desired effect, cut a notch in the branches carrying the bunches, just below the bunch, nearly half through the branch. In all cases where the Grapes are ripening the ventilation should be ample both night and day; and those kinds of Grapes liable to crack should have their roots confined to inside borders.—E.]

Converting Bones into Manure.—Is there any way by which I can reduce bones to a powder so as to render them available for manure?—*G.* [Place the bones in an earthen vessel, and to every pound of bones add $\frac{1}{2}$ lb. of sulphuric acid, and the same quantity of water. Stir the mixture occasionally for three or four days. What results may be used in a liquid form or mixed with dry peat, charcoal dust, or some other absorbent, and used in a powdered condition. The sulphuric acid must be used with great care, as it destroys almost everything it touches, except glass or earthenware.—H.]

Passion-flower.—*J. C. A. M.*—Your flowerless Passion-flower is too well fed. Keep its roots out of the manure heap into which you state they have found their way, and it will probably produce blossoms.

Diseased Potatoes.—*Q.*—No one can tell much about a Potato in the condition sent. It looks as if it had suffered from a bad attack of *Peronospora*; but when the tuber is ruined like the specimen in question, the fungus has generally vanished for good. The fungus with its resting spores is never found in a dried-up tuber, but always in the very soft, juicy, and semi-transparent specimens.—*W. G. S.*

Camellias.—*J. H.*—They seem to be in good health; the variegation will do no harm.

Tropæolums.—*G. F. D., Copenhagen.*—Any of the leading Scotch or English nurserymen ought to be able to supply them.

Names of Plants.—*M. S. D.*—1, Adiantum trapeziforme; 2, Aspidium caryotoidum. *S. J.*—1, Aster Novæ-Angliæ; 2, A. versicolor; 3, A. lævis; 4, A. longifolius; 5, Eriophora riparia. *W.*—*Nerine sarniensis.* *Surrey.* We cannot name from leaves only. *M. T. S.*—1, Pyrethrum uliginosum; 2, Rudbeckia hirta. *Enquirer.*—Apparently a species of Allamanda, but too much withered for recognition. *G. H.*—1, Ficus repens; 2, Croton pictum; 3, C. Wiesmanni; 4, A species of Oncidium, but it is difficult to say which from the material sent. *Subscriber.*—Next week. *H. W.*—1, Lasiandra macrantha; 2, Croton discolor; 3, C. aucubefolium; 4, C. variegatum; 5, C. angustifolium; 6, apparently C. irregulare. *G.*—1, Aster versicolor; 2, A. Novæ-Angliæ var. pulchellus. *May.*—1, 2, & 3, Crested forms of Asplenium Filix-foemina; 4, Asplenium bulbiferum; 5, Aspidium fulcatum. *G. J. C.*—1, Lobelia Erinus var.; 2, Campanula rotundifolia, probably, but cannot be certain without lower leaves. *T. W. T.* Odontoglossum crispum (Alexandria), not rare.

Names of Fruits.—*S. R.*—Pears—1, Louise Bonne; 2, Gansel's Bergamot; 3, Marie Louise; 4, Beurré d'Arenberg. *M. T.*—1, Duchesse d'Angoulême; 2, Not in a condition to name; 3, Beurré d'Amanlis. *J. S.*—Apples—1, Nelson's Codlin; 2, Hawthornden; 3, Peasgood's Nonesuch; 4, Winter Pearmain. Others next week.

THE GARDENING SEASON OF 1879.

THE whole of the horticultural press for the last six months has been keeping up one continual grumble, but for my own part I only see much to be thankful for. To notice the whole of the inmates of a fruit and vegetable garden would only be wasting time and space; but I may make a brief reference to the salient points. Taking what I may justly call the most useful of all fruits, viz., Gooseberries, Currants, Raspberries, and Strawberries, I must say

that I never saw more abundant crops. The only fault, if faults there were, was that they were all one month later in ripening than usual; but the quality of all was good. Let us next take Plums of all kinds, including Damsons. Of these I never saw better crops; we are just now supplying Victorias from a west wall for dessert, late Gages and Damsons for cooking purposes, and at this late period (Oct. 15) they are most acceptable and useful. Of Pears, we are now using Williams' Bon Chretien of good quality, but they lack the usual size; still little fishes are better than none. Passe Colmar, Ne Plus Meuris, Marie Louise, Thompson's, and that grand late Pear, Bergamotte d'Esperen, are all well cropped with good-sized fruit, which I feel confident will do us good service in due time. Of Peaches, I am still gathering Princess of Wales and Galande, only finishing the Royal George section a week back; while of Nectarines, both Pine-apple and Elruge are a good size and well coloured, and taking into consideration not the badness but the lateness of the season, of fairly good quality. Of Apples I have nine varieties which always crop well; only a few days back I gathered 5 bushels of Cockle Pippin off one tree, and a like quantity off another of what is locally called Cat's-head. Lord Suffield, King of the Pippins, Claygate Pearmain, Linden Pippin, Dutch Mignonne, Hawthornden, and Lady Lennox have all done well during the twelve years I have had charge of them; and to these I may add Peasgood's Nonesuch, the first year of its bearing here promising well. I may mention that Apples have not so bright an appearance as usual, nor are they so large, but still I see little ground for the grumbling to which we have been lately treated. Taking vegetables generally, and the king of them—viz., Potatoes—particularly, I have the same tale to tell. Our early crop (Myatt's) never was better; that is the chief kind which we grow in the garden proper. Our field crop consists of only four varieties, viz., Regents, Paterson's Victoria, Compton's Surprise, and Paterson's Champion. The average of the former is 36 bushels good and 6 diseased, while of the two latter, which, I am happy to say, are keeping well, there is not one in fifty diseased. Taking vegetables generally, I may safely assert that all have done fairly well.

R. GILBERT.

OBITUARY.

MR. GEORGE GORDON, author of the "Pinetum," and one of the best known of the now old school of London horticulturists died on the 11th inst. He was one of the last of the "Chiswick School," and his mind was a mine of information on trees and shrubs as well as his special subject—Conifers. He was at one time a frequent contributor to THE GARDEN. His book on Conifers is considered the most useful one on the subject in this country, and it saw two editions, both published by Mr. H. G. Bohn. We believe some of his large collections of specimens went to the Kew herbarium and some to America. He was for many years superintendent of the arboretum department in the Royal Horticultural Gardens at Chiswick, where he had for companions in the other departments Munro, Thompson, and Fortune, the last now the only survivor. He was an Associate of the Linnean Society.

Nature announces the death of the well-known botanist, Mr. John Miers, F.R.S., F.L.S., which occurred on the 17th inst. Mr. Miers was born in London on August 25, 1789, of Yorkshire parents. After leaving school he devoted his time to the study of mineralogy and chemistry, but it was only subsequently, during his long residence in South America, that he acquired his taste for botanical knowledge, and by making dissections and drawings of plants he became a botanist. In 1825 he paid a short visit to England, and then published his "Travels in Chili and La Plata." He contributed many papers of interest to the Linnean Society, and published the "Illustrations" and "Contributions" to South American botany. His zeal and energy in his pursuits were most untiring, and he only desisted from his labours when forced by failing health in July last, since which time he gradually became weaker, till death ended his life on the 17th inst., in the ninety-first year of his age. It is understood that Mr. Miers has left his botanical collections to the British Museum.

We have received notices of the death of two of the founders of the Pomological Congress of France, viz., M. Baltet père, eighty years of age, founder of the nurseries of Croncels at Troyes, now conducted by his sons Charles and Ernest; and M. Willermory, founder of the Horticultural School at Ecully, near Lyons, now the Agricultural Institution of the Department of the Rhone, aged seventy-six.

The death is also announced of Dr. Eduard Fenzl, of Vienna, professor of botany, and director of the Imperial Botanical Cabinet. Dr. Fenzl was a member of the Vienna Academy of Sciences, and vice president of the Vienna Horticultural Society. He died on September 29 last at the age of seventy-two years.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NOTES OF THE WEEK.

Odontoglossum Londesboroughianum pardinum.—

We have received from Messrs. Backhouse & Son, York, an example of this splendid variety. It is decidedly superior to any of the forms we have yet seen, as the flowers are not only larger—being upwards of 2 in. across—but the colours are more distinctly defined and brighter. The principal point of distinction, however, is the beautiful clear yellow lip, which is $1\frac{1}{2}$ in. broad, and copiously speckled all over the surface with reddish brown spots. Accompanying this were specimens of the lovely *Lælia albida bella*, with an amethyst tinted lip, and bluish tinted sepals; the *atro-rubens* variety of *L. autumnalis*, a gorgeous form, with large flowers of a rich deep purple shaded crimson, and with the lip pure white in the upper half. Also flowers of *Cattleya maxima*, *Oncidium tigrinum*, the charming little *Barkeria Lindleyana*, Maule's *Cypripedium*, and an unusually fine form of *Odontoglossum maculatum*, with the colour very distinct and bright.

The Rattlesnake Plantain.—*Goodyera pubescens*, which bears the above English name in America, where it is wild in the woods of the Eastern States, is a beautiful little Orchid with leaves close to the ground, delicately veined with silver; it is, in fact, a hardy variegated Orchid, particularly distinct and pleasing, although its flowers are not showy. It has long been grown here and there in botanic and other choice collections, but never so successfully as it is now growing in Mr. G. F. Wilson's wild garden in Surrey. He planted it in a rich wood, exactly in the position in which it grows in its native home, and the plants look quite as well as we have ever seen them in America.

Angræcum Chailluanum.—This extremely rare Orchid may now be seen in flower in the Royal Exotic Nursery, Chelsea. In habit of growth it is similar to most of the other cultivated species. The flowers are produced on axillary racemes, and are much in the way of those of *A. sesquipedale*, though, of course, considerably smaller. They have the same waxy whiteness, and a spur upwards of 4 in. in length. It seems to be quite devoid of scent, rather a detracting point, as most of the other kinds possess that quality in a remarkable degree. It is a native of equatorial West Africa, and is named in compliment to Du Chaillu, the distinguished naturalist and African traveller.

Trafalgar Square.—We learn that the planting of this square with trees is in contemplation, and that Mr. Anthony Waterer, of the Knap Hill Nursery, Woking, has received instructions from the First Commissioner of Works to supply Plane trees for the purpose. The planting of a few trees in this locality has long been advocated in THE GARDEN. They are certainly much wanted in order to tone down, as it were, the huge piles of bricks and mortar which surround it.

Trichosma suavis.—Of this rare and extremely pretty Orchid, which is nearly allied to the *Erias*, there is now a fine show of bloom in one of Mr. Bull's Orchid houses at Chelsea. There are upwards of fifty racemes of flowers, and the aromatic perfume emitted by them is delicious, which well justifies the applicability of its specific name. The flowers resemble in form some of the smaller-flowered *Cœlogyne*s, and are white with a golden-crested lip, the wing-like sides of which are beautifully marked with heavy pencillings of deep red on a pale ground. The stems are short, and bear a pair of smooth, shining leaves. In the same nursery there are many other highly interesting Orchids in full beauty, such as the pretty *Oncidium ornithorhynchum*, of which there is a large number, representing a great variety of shades of tint from pure white to the deepest rose. The singular *Dendrobium fimbriolabium*, with its twisted flower segments, is still in bloom, as are also the Long-spurred *Dendrobe* (*D. longicornu*), a species with white flowers pencilled with orange streaks, the showy *Oncidium Rogersi*, and various others.

The May-flower (*Epigæa repens*) in an English Wood.—Mr. G. F. Wilson has this thriving perfectly in his wood, or wild garden. It is an extremely difficult plant to manage in nurseries and gardens, where one rarely sees it in a good state. We have seen it in New Jersey running about under the Fir trees and shrubs, and carpeting the woods, and we always felt that it only required a similar situation in this country to thrive well. It will

grow in any sandy wood where coarse or rank vegetation cannot exterminate it. This plant is called May-flower in New England, and Ground Laurel or Creeping *Arbutus* in other parts of the United States.

Cox's Orange Pippin from America.—There are some very fine fruits of this come from America, but when put to the eating test they are very disappointing, having lost their fine juice and become mealy and poor in flavour. Why this is so we cannot exactly say, but it is pretty clear that English Apples in America are not much better than American Apples in England, and that each country had better grow its own varieties. We have also tasted some Ribstons and Blenheim Oranges from America this year, which have the same failing, having lost their delicacy of flavour and become mealy. The great amount of sunlight and heat has probably carried them beyond the point at which they are best before they could be brought over.

Andromeda arborea.—This is called, and not inaptly, the Lily of the Valley Tree. It is certainly a beautiful tree, especially when seen in large specimens as that in Mr. Anthony Waterer's nursery at Knap Hill, where it has been for some considerable time an object of much beauty. The leaves are in size and shape like those of the Peach, but are white underneath, and have a pleasant acid taste, hence the origin of its popular name, the Sorrel Tree. The flowers are small, urn-shaped, of wax-like texture, and pure white, and are produced in profusion in terminal, forking, one-sided racemes, 6 in. to 8 in. long. It is a native of North America, where it grows plentifully in the valleys of the Alleghany Mountains, and often attains the height of 50 ft.

Mediterranean Reed Grass (*Arundo mauritanica*).—In the Water Lily house at Kew this very ornamental Grass has for some time past attracted much attention, on account of the graceful appearance of its huge feathery plumes, which are 2 ft. in length and from 8 in. to 10 in. in breadth, produced on stems nearly 12 ft. high. The handsome broad foliage, which is overlaid with a glaucous hue much increases its beauty. For growing in a warm greenhouse of sufficient size to admit of its full development, and where also it can obtain abundant moisture at the roots, there are few subjects more desirable. It is a singular fact that when planted in the open air in rather a dry soil, its leaves acquire an elegant variegation, but when placed again under liberal treatment the foliage reverts to its original character. Job's Tears (*Coix Lacryma*), and the White Rosseau (*Cyperium saccharoides*) are also very effective just now in the same house.

The Purple Swan Orchis (*Cynoches Egertonianum purpureum*).—This is a remarkably singular Orchid, the flowers of which are very similar in form to that shown by Mr. Bull at the last meeting at South Kensington under the name of *C. Warszewiczii*. The colour of the flowers, however, is quite distinct, for, instead of being green, they are of a deep, velvety-maroon tint marbled with greenish streaks, which, combined with the graceful appearance of the racemes, renders it highly attractive and, from a horticultural standpoint, decidedly superior to the other kind. If large flowers are produced from the same bulb, as in the other, *C. Warszewiczii*, and of the same deep colour, it will be a desirable acquisition. It is now in perfection in Mr. Bull's nursery.

Panoratum rotatum.—This is one of the most beautiful of the hardier species. It has flowers about 6 in. across, with narrow segments, and a shallow-fringed corona 2 in. in diameter, all of snowy whiteness, the only colour to mar their chaste beauty being their golden-tipped stamens. Their perfume is delicious—almost as powerful as that of some of the tropical kinds, such as *P. fragrans*. In its native habitat they have the peculiarity of only opening at night, or in cloudy weather. It is found on the marshy banks of streams in Kentucky, Virginia, and elsewhere in the more Southern States. We saw it a few days ago, beautifully in flower, in a cool house in Mr. Ware's nursery at Tottenham.

Orchids in Flower at Chelsea.—It may be interesting to Orchid lovers to know that the following are now in perfection at Messrs. Veitch & Sons' nursery. Of the splendid *Cattleya exoniensis* there is a grand example bearing many flowers, and a very fine form as regards well-defined richness of colour. The old *C. labiata*, of which the finest varieties appear to have become scarce, is here represented by some fine plants. A superb variety is bearing five flowers from one sheath, and of a size and depth of colour simply exquisite. Of *Cypripedium*s there are the new *C. Spicerianum*, to which we alluded a short time since, *C. Arthurianum*, a handsome hybrid between *C. insigne* and *C. Fairreanum*, several forms of the pretty little *C. Schlimii*, and various others. *Cattleya Philbrickiana*, a beautiful hybrid, the result of a cross between *C. Aclandiae* and *C. Harrisoniae*, is still in flower, as is also the fine *Dendrobium formosum* and its variety *giganteum*, which for some time has been

a great ornament. There are few prettier sights at the present time than the several kinds of the Indian Crocus or *Pleiones*, of which there are several pans quite covered with flower. *P. lagenaria* and *P. maculata* are two well-known kinds, but none the less beautiful are *P. humilis*, *P. Wallichiana*, and its variety *præcox*. Of the more curious than showy Orchids, there are none in flower so remarkably singular as *Stelis Bruchmülleri*, a small growing kind with the habit of a *Masdevallia*. The racemes of flowers are produced from the sheathing leaf-stalks, and bear from twelve to sixteen tiny triangular-shaped flowers of a dull red hue, with the edges so beautifully fringed that they appear to be invested with wool.

Lilies in Woods.—Mr. G. F. Wilson has made a very interesting experiment on a large scale in the growth of Lilies in his wild garden in Surrey. In shade and partial shade of Oak and other native trees they have thriven well and flowered freely during the past season, when decay and disease were so rife among these plants that many despaired of their culture. Mr. Wilson believes, from his experience, that for many kinds the shade and shelter of trees and shrubs are desirable. It is also certain that in a wild state these plants often grow in woody places.—V.

Hydrangea paniculata grandiflora.—Some of the finest examples of this very handsome shrub with which we have yet met are in Mr. McIntosh's garden at Duneevan, Weybridge. They are growing amongst *Rhododendrons*, the green foliage of which forms a capital background for their huge clusters of white blossoms. Associated with them are also golden-rayed Lilies (*Lilium auratum*), which are well known to have here attained a size and luxuriance unsurpassed in this country. It is thus evident that the *Hydrangea* delights in a deep peaty soil, though it grows well in loamy soil, and a finer object in the autumn in any place could not well be imagined.

Ruta albiflora.—This very pretty Nepalese plant, which is also known as a species or *Bœninghausenia*, is one that is worthy of more attention as a decorative plant on account of its elegant habit and long, loose clusters of tiny, white, bell-shaped flowers. The foliage is somewhat similar to that of the common Rue, but it is more finely divided, more glaucous, and thinner in texture. As to its hardness there appears to be some doubt, but probably it would withstand our ordinary winters in the open air. We saw it a few days ago finely in flower in Mr. G. F. Wilson's garden at Weybridge.

Aphelandra cristata.—The *Aphelandras* are all useful plants, but none are more valuable than this old-fashioned species, a grand specimen of which is now finely in flower in Mr. Bull's nursery. The brilliant scarlet flowers produced in such profusion in dense, erect clusters rising boldly above the foliage, render it a most desirable plant. Its protracted mode of flowering, too, is another and important recommendation, for it has been in full beauty for some considerable time. Like most of the other kinds it also flowers freely in a small state, if care is taken to select flowering shoots for the cuttings.

Maule's Japan Pear (*Pyrus Maulei*).—The handsome fruits of this shrub, of which a coloured figure was given in THE GARDEN (Vol. XIII., p. 390), are nearly as ornamental in autumn as the showy orange-scarlet blossoms are in spring. In Mr. Stevens' garden at Byfleet there are hedges of it, and just now its fruit is very attractive. The present season, however, has not been favourable for its growth, and therefore it is not nearly so large or so highly coloured as when the seasons are long and sunny. In the same garden various kinds of *Pyrus*, *Cratægus*, and *Cotoneaster* also present an ornamental appearance, owing to the numerous clusters of red fruits which they are now bearing. These and similar subjects are very desirable for associating with other kinds of shrubs, even for their autumn effect alone, and they are none the less prized for their beauty in spring.

The Phylloxera in Australia.—This dreadful scourge is not content with devastating the European Vineyards, but has appeared in those of Victoria, in the district of Geelong. The Bendigo Vignerons have sent a recommendation to the Government that the Geelong Vineyards should be at once purchased by the State and destroyed, and in this movement the New South Wales and South Australian Government have been asked to co-operate. The sum estimated for the purchase is about £30,000.

Jacquinia aurantiaca.—This pretty neat-growing shrub is now very attractive on the shelves in the Palm house at Kew. It has a compact, much branched habit, small deep green glossy leaves, and clusters of bright orange-red, bell-shaped blossoms about 1½ in. across. It is a native of South America, hence it requires a stove temperature.

Primroses.—Mr. Dean sends us flowers of hardy Primroses in several rich colours, to show not only the abundance of bloom that may now be found on many spring flowers, but also the rich beauty which these charming plants possess, and which seem to

grow more varied and attractive every year. Flowers of a new white double Daisy named *Virginia* also accompanied the Primroses. This is flowering freely now, whilst not a bloom is to be seen on other kinds. The stalks are long and the blooms so pure that it probably would pay grown under glass for button-hole bouquets.

A New Violet.—Mr. G. Lee has sent us from Clevedon flowers of a new Violet bearing the name of *Argenteaflora*. Its blossoms are large, pale purple, but in winter nearly white and deliciously fragrant. It is said to be very prolific, and almost a perpetual bloomer.

Autumn Flowering of Darwin's Barberry.—The large masses of this beautiful shrub in Mr. Hancock's garden at Oatlands Park, Weybridge, are in full flower at the present time, this being the second flowering this season; a point which much enhances the value of this fine hardy shrub. The past summer has apparently been favourable for its luxuriant growth, and, in most places, it has recovered from the effects of the last winter.

Appointments.—The following botanical appointments have been recently made by the Colonial Office:—H. Trimen, M.B., London, F.L.S., Senior Assistant in the Department of Botany, British Museum, to be Director of the Royal Botanic Garden, Ceylon, in the place of Dr. Thwaites, C.M.G., F.R.S., who retires on pension with the title of honorary Government Botanist.—Dr. Morris, B.A., Trinity College, Dublin, F.G.S., late Assistant Director of the Royal Botanic Garden, to be Director of the Botanical Department, Jamaica.—H. Marshall Ward, scholar of Christ's College, Cambridge, to be employed for two years as Cryptogamist in the investigation of the Coffee-leaf disease in Ceylon. He will be subordinated to the Director of the Botanic Garden, and will have the use of the Assistant Director's house. Mr. Morris and Mr. Ward were formerly students of the Science and Art Department.—*Nature*.

New Garden at St. Petersburg.—There are at present no gardens attached either to the Emperor of Russia's Winter Palace or to the Annitchkoff Palace of the Czarewitch, and the Emperor, whose regular habits of walking in St. Petersburg are well known, has hitherto been accustomed to take his daily constitutional in the summer garden on the Neva Quay or round about his palace. It is said therefore that the Czarewitch is anxious to provide a quiet retreat for the Emperor, where His Majesty may retire for relaxation from the cares of state instead of subjecting himself to all the inconveniences of public promenades. The garden proposed to be made by the Czarewitch will, therefore, no doubt be walled in and made strictly private as at Buckingham Palace, and the tall figure of the Emperor, no longer a young man and careworn with the burden of State, will henceforth be less familiar than hitherto among his subjects in the streets of St. Petersburg.

Marsh Fever.—Prof. Klebs, of Prague, and Prof. Tommasi, of Rome, have been examining during the past spring into the poison which produces marsh fever. The former has in a recent number of the *Zeitschrift*, given full particulars of the experiments made and the results obtained. These investigators examined the lower strata of the atmosphere of the Agro Romano and its soil. In both they discovered a microscopic fungus, consisting of movable shining spores of a long oval shape, about 9 micromillimetre in diameter. With these spores animals were artificially infected with intermittent fever of the true marsh type, and they showed precisely the same enlargement of the spleen as human beings who have caught the fever in the ordinary way. Messrs. Tommasi and Klebs have given this fungus the name of *Bacillus malarie*, as it grows into the shape of small reeds.

Woolly Aphis.—When repotting Auriculas I have sometimes found those added from other collections badly infested close to the sides of the pots with this pest; but when I came to those which I had had potted with the following compost for two seasons, there was not the slightest sign of an aphis. Formerly charcoal pits were fixed hereabouts—say ten or twelve years ago. I have obtained some of the refuse, which appears to be composed largely of charcoal and leaf-soil; also a little loam. After passing this through a fine riddle, it is used for the Auriculas without being further mixed, employing lumpy charcoal at the bottom instead of crocks. The result in this case being very satisfactory, may not this burnt refuse be an antidote for the aphis? I rarely find a worm in such compost.—JOHN WOOD, *Kirkstall*.

The Goat-moth is reported to be very destructive this year at Frodsham and thereabouts. The plantation from which Mr. Hibberd selected trees to illustrate his lecture on fruit culture at the Society of Arts a few years since was thinned to the extent of about twenty per cent. by this plague, the young trees being bored as by an auger, and death following soon after; therefore Frodsham has no monopoly of this plague.—*Gardener's Magazine*.

ROSES.

TEA ROSES FOR AUTUMN-FLOWERING.

WHEN chilling autumnal rains and nipping frosts have dimmed or destroyed the beauty of the flower garden, good flowers become scarce, and a serious deficiency in the supply is apt to occur. From this time forward, anything in the shape of a flower is welcome, and a single Rose-bud in the late autumn or early winter months is often of greater value to the grower than a whole bushful would be in the summer season. It is when choice flowers have become rare that a few good Tea Roses prove of immense service, and I consider that every establishment should make arrangements for extending the flowering season beyond the period at which plants usually cease blooming in the open air. The fragrance of Tea Roses is so delicious, and the colours so chaste and delicate, as to render them suitable for the choicest of floral decorations. With a half-expanded Rose-bud, a few sprays of Heath, Primula, and Maiden-hair Fern, a bouquet may be made capable of pleasing the most refined taste.

The plants intended for late blooming are best grown in the open air, plunging the pots up to their rims, and either top-dressing with rotten manure or administering copious supplies of manure-water in hot weather. The object of the grower should be to encourage a free, hearty, luxuriant growth during the summer and early autumn months, thereby inducing the formation of healthy bushy heads of foliage, which by the middle of October will be studded with buds in various stages of development. By this time the plants should be placed under glass, leaving on full air night and day, merely closing up in frosty weather—treating them, in fact, like Chrysanthemums. A few plants thus grown will furnish blooms up to the middle of December, when they may be taken out and placed in a sheltered situation, covering them in severe weather, for the Tea Rose is always grateful for a little protection against hard frosts. In the spring shake away as much of the old soil as possible, and repot in good loam and rotten manure, and plunge the pots again in the open ground. Plants thus treated will yearly increase in vigour and bloom-bearing capacity, and will richly repay the grower for the pains which he may have expended upon their culture. Some kinds do not submit kindly to this treatment, but there are others which naturally flower so profusely at a late period of the year as to render the production of Roses at that time a comparatively easy matter.

Having quite recently gone through a large collection of Tea Roses growing in the open air, I have selected the following as best calculated to afford satisfaction when grown as already recommended, viz., Homère, rose, salmon centre, an old kind but one of the best, being vigorous and very floriferous; Perle des Jardins, yellow; Madame la Comtesse de Caserta; Madame Francois Janin; Souvenir d'un Ami, one of the very best kinds grown; Madame de St. Joseph; Madame Lambard, a very fine, large-flowered, in every way desirable variety; and Madame Falcot. These varieties were conspicuous amongst all others for the free manner in which, at such a late season of the

year, they were flowering, and would suffice, if well attended to, to prolong the flowering season into the winter months. Amongst other late-flowering kinds may be mentioned Aimée Vibert, Souvenir de la Malmaison, Antoine Verdier, Céline Forestier, and Solfaterre. I find, too, that amongst others I have omitted the glorious old Gloire de Dijon, one of the best of Teas; instead of finishing, I should have commenced with this fine kind. It may not be out of place to offer here a few words of advice to intending purchasers of Roses. I would counsel buyers to go themselves and see the plants growing, make their own selection, and have the trees taken up, and, if some time must elapse before reaching home, the roots should be enveloped in litter. Take the plants away with you, and damp the roots before laying them in the ground. Pot them as soon as possible, and if they cannot be sheltered in a deep pit or cold house, plunge the pots, and cover them in hard weather with bracken or litter of some kind. Tea Roses especially need all the

care which can be expended on them, for unless they are well provided with roots in the spring they fail to make the amount of growth requisite for the production of good flowers in the autumn.

Byfleet. J. CORNHILL.



Climbing Rose on Old Tree at North End House, Twickenham.

Climbing Roses in the Wild Garden.

One of the most charming effects in wild gardens may be obtained from the planting of some of the more vigorous climbing Roses in positions where they can take care of themselves. The pruning is so often injudiciously done that it is almost better to let them alone. In any case we have never seen climbing Roses so beautiful as when they are allowed to grow over some old tree or large shrub, and there tumble about in their own way. There is a good instance of this in Mr. Bohn's garden at Twickenham, where the *Felici é Perpetuee* had grown up an old Catalpa tree, and grown down again laden with showers of blossoms. A more picturesque object we have never seen. The accompanying illustration is an engraving from a drawing of it made for us by Mr. Alfred Parsons. Half-a-dozen free and bold varieties equally well trained would almost make a Rose garden of any place. Such things are indispensable in the wild garden

where that beautiful phase of gardening is understood.

Rose Duke of Teck.—Amongst the new Roses of the coming year, the Duke of Teck will take high rank. It is a true English Rose—a Cheshunt raised variety, and like all the seedlings produced there it possesses such a vigorous constitution as to be well suited to our English climate. The mode of raising seedling Roses may be expressed in a few words. The seeds are sown in open and perfectly unprotected beds, and by following out the principal of natural selection all the weakest plants are killed off the first winter, the strong, robust, hardy seedlings alone surviving. About the third year the seedlings bloom, and those of a promising character are worked, as Rose growers term it, that is if approved, one or two buds only being inserted. If again approved the variety is named and multiplied in quantity, and flowers are submitted for public approval at the various Rose exhibitions. This has been the course inspection by Messrs. Paul & Son, at the Old Cheshunt Nurseries, in respect of Duke of Teck; and it made its first appearance at the

exhibition of the Richmond Horticultural Society in June 1877, when it was much admired, and thought worthy of bearing the name of the president of the society; since then it has gained many honours, and among these a first-class certificate from the floral committee of the Royal Horticultural Society; the same at the Alexandra Palace Rose show, and it also gained Mr. G. P. Hawtreys prize for the best English seedling Rose not in commerce at the exhibition of the National Rose Society, and it has also received exceptional praise from all the horticultural journals. The conditions of Mr. Hawtreys prize required that the flowers be accompanied by a growing plant to show proof of vigour and a good constitution in the variety presented for the prize. In the case of Duke of Teck this proof was forthcoming and appeared to fully satisfy the judges. The colour of Duke of Teck is a bright crimson-scarlet, clear and distinct in its vividness beyond any existing variety; it makes a decided step towards the attainment of a true scarlet Rose. The flowers are large, very double, and of the best globular form, with splendid self-coloured petals. The habit of growth is more erect than that of its parent—the Duke of Edinburgh, and the general aspect more upright and vigorous. This Rose possesses an excellent quality: it is a true and good perpetual bloomer. The plants from which blooms were cut in June last were still bearing flowers so recently as October 24—plenty of good flowers and buds.—R. D.

THE FRUIT GARDEN.

THE EXTENSION SYSTEM OF PEACH TRAINING.

MR. COWBURN (p. 372) asks me what is meant by "extension" in regard to Peach tree training, and says that unless a tree is crippled through want of space or barbarous pruning it must naturally extend itself. My answer is that the extension system in garden practice means the confining of pruning operations simply to disbudding in spring, and such thinning out of the shoots during summer as may be found needful, and dispensing with winter pruning altogether as it is generally practised. The system can only be practised fully under glass in this country, or under circumstances in which the shoots get ripened to their extremities every season.

For correct instructions and illustrations on the "restrictive" or mutilation system, I could not refer Mr. Cowburn to a better or more recent authority than the last edition of the "Gardener's Assistant." It is to the instructions on fan training there given to which I refer. He will there see an illustration of a Peach tree cut down to one stump about 1 ft. high at the end of the first year; at the end of the second year to two stumps, about 6 in. long each; at the end of the third to four, and so on; giving a fruitless stunted tree at the end of several years, when it should have nearly filled a Peach house 20 ft. long and as much high, and borne quantities of fruit. More trees have been ruined by trying to follow advice such as is given in the work just alluded to than by any other means probably. The best that can be said about it is that no sensible cultivator tries to copy the abortions there delineated, nor did we ever hear of any one succeeding who tried. Figure 277, given at p. 450, is an impossibility consistent with fruitfulness. In our own case before giving the book to young gardeners to read we drew the pen through most of the illustrations on fan training, and we should recommend others to do the same before submitting an otherwise excellent work to any learner. No allusion is made to the extension system in the work so far as I have seen; but it will probably find a place in the next edition. The system, as the article in the *Gardener* by Mr. Coleman proves, has been in vogue a good while, and a few gardeners as well as myself have advocated it at times, and amongst others should be named Mr. Dick, of Phoenix Park, when he was at Caulford Manor, Dorset. Some years ago I saw some fine trees there—young, but of large size for their age, and perfect examples as regarded health and fruitfulness.

Nor is the system applicable to the Peach only, but also to the Pear, Apple, Plum, and Cherry, and to many kinds of flowering and berried shrubs. I could at the present time show as fine examples of its effects on the fine old *Cratægus pyracantha* as could possibly be desired. These plants are quite young, and growing against a wall. Had they been pruned and pinched in the way generally practised with wall shrubs, they would have had no fruit upon them at their age, growing, as they are, in a strong rich soil; but they have been allowed to extend freely, laying in the leading shoots in all directions, and never shortening them back; and they are now complete masses of scarlet berries along their whole length, bearing out the theory that allowing the shoots to extend induces the production of fruit buds, while cutting back promotes wood growth chiefly. I apply the system also to Bougainvilleas and stove and greenhouse climbers generally. J. S. W.

FINE PEAR TREES.

I WILL take this opportunity of noticing two instances of remarkable Pear trees in this neighbourhood. Worlidge mentions "a Pear tree growing near Ross, in Herefordshire, in 1675, that was as wide in circumference as three men could encompass with their extended arms, and so large in the head that the fruit of it yielded seven hogsheads of perry in one year." The other is a still more remarkable tree. It grows in the vicarage garden and adjoining glebe land, in the parish of Holme Lacy, and has been celebrated for upwards of a century for its peculiarity of growth and its abundance of fruit. In the Parish Register of Holme Lacy for the year 1776 is the following entry:—

"Mem.—It is likewise inserted as a great natural curiosity, that the great Pear tree upon the glebe adjoining to the vicarage house produced this year fourteen hogsheads of perry, each hogshead containing 100 gallons."

Since this time, tradition states that it has yielded fifteen, sixteen, and, upon one occasion, as much as twenty hogsheads of perry in a single season. It has been well described by Duncumb in his "Agriculture" (1813) in these terms:—

"An extraordinary (Pear) tree, growing on the glebe land of the parish of Holme-Lacey, has more than once filled fifteen hogsheads in the same way. When the branches of this tree in its original state became long and heavy, their extreme ends necessarily fell to the ground, and taking fresh root at the several points where they touched it, each branch became a new tree, and in its turn produced others in the same way. Nearly half an acre of land remains covered at the present time. Some of the branches have fallen over the hedge into an adjacent meadow, and little difficulty would be found in extending its progress." (P. 90).

The tree is very curious and interesting at the present time. In the vicarage garden the group of stems is very picturesque, and several of the trees rise to a height of from 30 ft. to 40 ft. There are still nine stems on the lawn, one in the hedge, and seven in the adjoining meadow. Some creeping prostrate stems and a few upright ones have been removed for lawn improvement. The fruit trees in the garden have a circumference of from 7 ft. to 9 ft. 6 in. in the bole; and, added together, the trees give a total circumference of no less than 94 ft. In another meadow at a little distance is a complete grove of the same kind of Pear trees. They all seem to have sprung from one original tree, creeping along the ground in the same way as those in the garden have done. Its trunk lies prostrate and perishing whenever a new tree is not springing from it. The trees grow closely together, and form a cluster nearly 44 yards in diameter. This group grows upon land which formed part of the glebe until the year 1875, when it was exchanged for other land belonging to the domain, more convenient for the vicarage.—H. SCUDAMORE STANHOPE, in "Herefordshire Pomona."

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Grapes and Strawberries at Wortley.—The Grapes at Wortley are all that could possibly be desired, especially Black Hamburghs, which are particularly good. One of the houses that had not been cut at the time of my visit was about 50 ft. in length, and the Vines in it were planted about 2 ft. apart. The rods are about 19 ft. in length, and each bears on an average at least 30 lb. of fruit, and one could not find a badly finished bunch in the whole house. These Vines have been planted twenty-five years, and each year they have carried equally heavy crops. The foliage was healthy, and the wood well-ripened in all the Vineries, and thus, notwithstanding the inclement season, promise well for another year. As regards Strawberries, the bulk of those for forcing appeared to be Black Prince and Vicomtesse Héricart de Thury, all in smaller pots than one usually sees them in, viz., 5½-in. ones for the last-named kind, and smaller ones for the Black Prince. All of them had large well-ripened crowns, and the pots were filled with a mass of healthy roots. In short, they might be thrown to any distance without disturbing the ball. One rarely sees such fine plants of Black Prince for forcing, and, judging from present appearances, they will doubtless produce good fruits.—G. SUMMERS, *Sandbeck Park*.

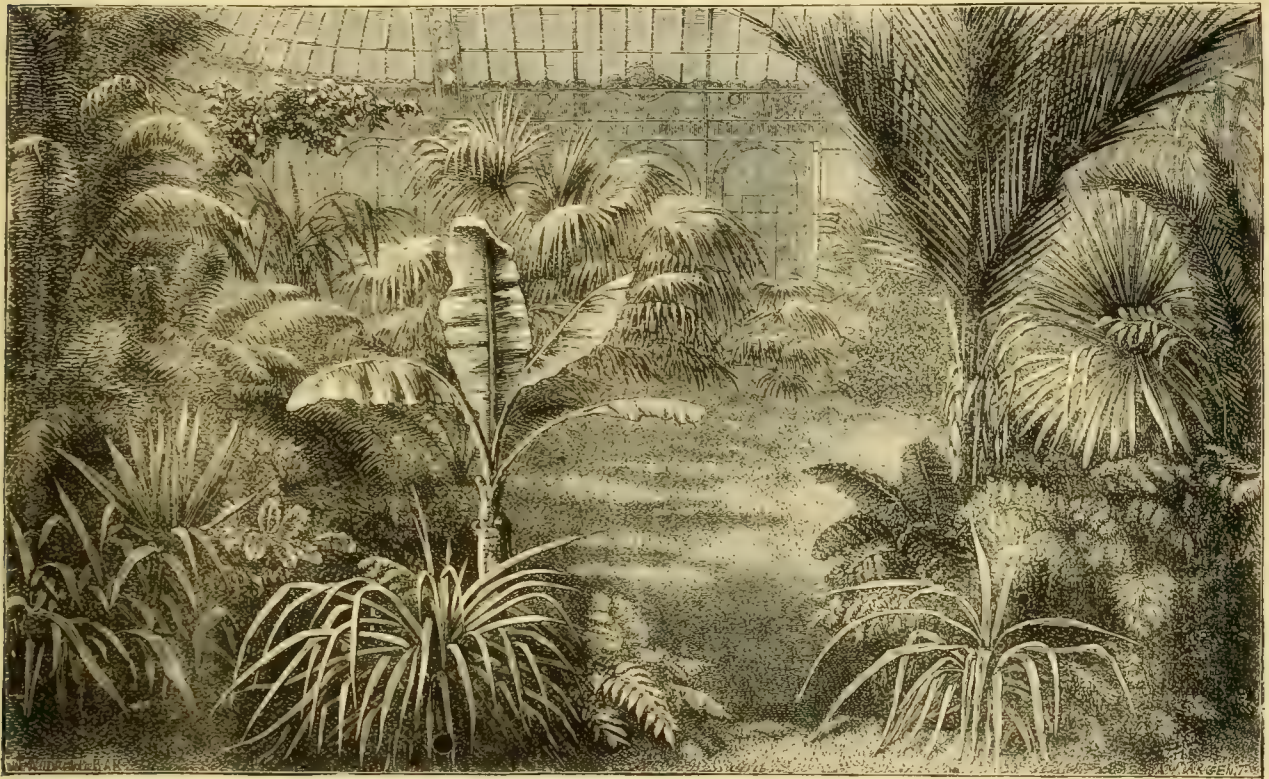
Chasselas de Fontainebleau.—One day in the summer of 1599, Henri IV., visiting the park of Fontainebleau, complained to the gardener that there were few flowers. The latter replied that he could grow nothing on the ground. "Sow Gascons, then," said the King, looking at the Duke d'Epemon, who was by his side, "they thrive everywhere!" "The Vine of Bearn, whose juice gives spirit to the Gascons, would do still better," replied d'Epemon. "That is an idea," said the King, who ordered his gardener to plant some stocks from Jurançon. The instructions were obeyed, and the Vine succeeded admirably. The long walls to the north of the park are

covered with trellis called "Treille du Roi," on which are produced immense quantities of the Grape called *chasselas*. The produce of this terrace was reserved exclusively for the tables of the Sovereigns Henri IV., Louis XIII., Louis XIV., and Louis XV., who throughout the year had Fontainebleau *chasselas* served up at dessert. However, the ministers, nobles, and favourites received baskets of Grapes from the park at the time of the vintage. During more than a century this trellis was the only place in the neighbourhood which produced good Grapes. But in 1730 a cultivator of Thomery obtained some cuttings which succeeded perfectly, and he speedily had imitators. Soon the whole neighbourhood was occupied in the cultivation of the Vine. Paris alone consumes more than 220,000 kilos. of *chasselas* annually, and what is very singular is that this excellent fruit does not owe its quality either to the position or nature of the ground. Thomery is not favourably situated, and its soil has few of the conditions essential to the Grape. The superiority is due to the choice of the Vines, and to the care taken in their cultivation. Curiously enough, this delicious fruit is totally unsuited

THE INDOOR GARDEN.

PICTURESQUE GREENHOUSES.

It is greatly to be desired that greenhouses were really green, instead of presenting a dismal picture of red pots and stages of insignificant plants. It is rare, indeed, in England to see a conservatory (which is only a fine word for a greenhouse) laid out in anything like a graceful manner; and yet nothing is easier. The trouble and time required in putting all the little plants in pots for a moderate-sized greenhouse, and the constant watering would, applied on what we conceive the true system, produce a much better effect in a house three times the size. The only true way is to treat a conservatory—that is to say a large greenhouse—like a small open-air garden, and to make it as free from all objectionable matters or surfaces as we would like a very pretty little garden to be. Of course we must draw a line between the greenhouse or conservatory or what is called a plant house,



A Green Greenhouse

for making wine. The word *chasselas* is the name of a village in the Soane-et-Loire, not far from Mâcon. In that district *chasselas* is an expression used to designate a Grape of fine flavour.

Bags Best for Fruit Gathering.—In place of these (p. 372) I much prefer a good large apron with a stout string or cord round the waist, formed into a satchel by bringing one of the lower corners through the string, meeting it with the other, and tying them together in a firm knot. In this way both hands are at liberty, and by untying the knot the contents are more easily emptied than they would be out of a bag. This, of course, likewise applies to small vegetables, such as Peas, Beans, &c., where two hands are also necessary.—T. COWBURN, *Sunbury Park*.

Green Yair Pear.—This old Scotch Pear is one of the few that have fairly come to maturity in the Cleveland district of Yorkshire this season. The crop, too, has been good, and the fruit has been selling at about double the price of that of the Hesse Pear. Any Pear that has stood the test of this season is worth notice. The Hesse or Hazel is a standard market Pear, which in ordinary seasons bears an abundant crop, but in size and quality the fruit is inferior, and its market rate low.—CHAS. McDONALD.

because the plant house must be always adapted to the growth of a plant, whereas the greenhouse, or what answers for it, is supposed to be a home containing the choicest flowering plants during the very best season of their bloom. The simple remedy in this case is to plant out the cool house, instead of adorning it with stages in the usual way. There are now a great many beautiful and graceful plants in the country from sub-tropical and temperate climes that grow most freely planted out in a cool or temperate house. A beautiful house could be made with these alone, without the addition of the ordinary greenhouse favourites; but the height of beauty is attained by adding a few flowering greenhouse plants amongst those planted out permanently in the structure. A little bed of Chinese Primroses, a handsome "cool" Orchid, a graceful tall Fuchsia, a beautiful Azalea in flower—these, and such as these, brought in fresh, enhance the charm of the general effect. In old times the planting out of the greenhouse was not so uncommon as it is now, but generally subjects were chosen, such as Acacias, &c., which quickly ran up to the roof and became ragged and unclean. The right kinds are such plants as the New Zealand Flax, the hardier Palms, and greenhouse Palms, the Bamboos, large Ferns, &c., and also many others, such as Dracenas. We notice a Philodendron and Strelitzia doing

very well in the cool house in the Regent's Park. The large Tree Ferns of Australia would do beautifully, and there are some flowering plants which would also grow well with these, such as the white *Brugmansia*, and a variety of beautiful pillar and roof plants. The bed of the conservatory must, of course, be designed with reference to planting out, and have only as much walk as is necessary, and that, as a rule, towards the outer side. Our illustration shows a very beautiful conservatory of this sort, one formed by Madame Fould at St. Germain. Here and there in this house there are little beds in the turf for the reception of flowering plants, which are planted in masses; Orchids and larger subjects are placed between the fine-foliaged plants, so that little or no pot is seen anywhere in the house, but throughout a charming miniature landscape of graceful forms and bright blossoms, with a pretty little lawn of Moss in the middle.

UNTRAINED STOVE AND GREENHOUSE SHRUBS.

It is a pleasing sign of the times that formally-trained specimen plants are beginning to fall into disrepute. The most that is claimed for such now, even by those who encouraged formal methods of training most, by precept and example, is that they are convenient for exhibition purposes. In private gardens it is not contended that formal training is at all necessary. If nothing were gained but the time, this would be a matter of congratulation. Proprietors of gardens have hardly any idea of the cost of training a lot of specimen plants when "specimen" growing is carried out anything like fully. We have known many gardens where even important duties were neglected in order to attend to the few specimen plants on the place, which nobody saw, and in which the proprietor had hardly any pleasure or interest, all being destined for show purposes. When these were fulfilled, the routine of preparing the plants for another campaign began again; and so it went on year after year. We do not wish to disparage exhibitions, of course, but we apprehend their true purpose is not to encourage the mere business of specimen growing and nothing else. There are cases where the subjects exhibited represent the state of the garden from which they come, and reflect the skill and management generally, but they are few. These facts many gentlemen are well aware of, and hence they decline to allow their gardeners to exhibit plants. It is different in the case of fruit. A gardener cannot possibly continue to exhibit good Grapes year after year, and at numerous shows during the season, unless he has good crops generally; and it is but a fractional portion, after all, that is shown, so that the home supply is hardly infringed upon. And it is the same with Pines, Peaches, and other fruits. We are acquainted with gardeners who are amongst the foremost exhibitors of Pine-apples, and yet, in addition to supplying their employers' tables, dispose of perhaps £100 worth per annum in Covent Garden, where their fruit has been well known for years back.

Coming more directly to the subject of training plants, it will suffice perhaps to give a few general hints upon some of the most popular subjects. The *Azalea* is perhaps the plant that has been operated upon most commonly by the trainer; we do not remember ever to have seen a naturally grown specimen set up for competition on any notable occasion, but pyramids—most of them very one-sided—bell, and umbrella-shaped specimens have always been common enough. Now the *Azalea*, and also the greenhouse *Rhododendrons*, are most accommodating subjects if left to themselves, in which condition, too, they are more easily preserved in health. The young plants which can be procured cheaply at the nursery, with stems 12 in. or 15 in. high, make the best plants for house furnishing or for the conservatory, and also for cutting from, and they will stand the latter operation, too, without disfigurement, which a symmetrically trained specimen will not do. If the plants be liberally treated, and not over-potted, they will naturally develop rather round or broad heads, just according to the habit of the variety, and will never need touching with the knife, or a single tie or stake of any kind. To attempt to convert such plants into formal specimens is to render them useless for the first few years. Small as they are, they are effective and useful when allowed to grow naturally, but any tying down reduces the size and makes them abortions for the time. They can also be preserved of any size and confined to small pots as long as desirable, by reducing the heads with the knife occasionally, and reducing the roots at potting time. We have numbers of plants of various sizes that have been confined to small pots suitable for Roses for years, without in the least interfering with their health.

The same remarks apply, as a rule, also to such subjects as *Acacias*, *Genistas*, *Boronias*, *Daphnes*, *Neriums*, and indeed all the shrubby and erect-habited greenhouse plants. With some close young species, which it might be desirable to have good-sized plants of, or when it is necessary to open up the branches to admit light and air to the foliage, a certain amount of staking is, of course, allowable and necessary; but it should be so managed as

not to offend the eye. Nor need there be any hard and fast line drawn as to the matter of shape and symmetry. A bare-limbed, ill-furnished, and straggling subject, created by neglect or bad culture, nobody likes to see, and it is right to make shapely plants of such by the readiest means, whether by the use of stakes or ties; nor is there any objection even to a certain evenness of outline, particularly in the case of plants that naturally grow that way; but attempting to imitate a pyramid, an obelisk, a balloon, or any other purely artificial figure is as little desirable as attempting to make similar objects of the ornamental trees and shrubs in our parks and pleasure-grounds—a practice which no landscape gardener of the present day would dare to advocate or encourage.

Of all hard-wooded plants which have been operated upon by the plant-grower, probably the Cape Heaths have been tortured the most. In their case training has been carried to such a length as, in some instances, to completely disfigure the plants. It used to be quite a common occurrence to see Heaths in noted collections at the great shows in which all the flowers had been bent or tied this way and that so late as the day before the show apparently, in order that the whole surface of the round, stiff, and formal-shaped head might be covered in perfectly regular fashion all over, utterly regardless of the plant's natural habit. We have often seen Heaths of the tricolor class trained in this unnatural way, and not only have they been passed without protest by those who are considered competent judges, but awarded valuable prizes, and afterwards described as "models of successful culture." A plant of *Erica Aitoniana*, *Turnbulli*, *Austiniana*, or *Marnockiana*, is a pretty object when well formed, and when all their flowers stand naturally erect; but when laid down so as to show the wrong side of the flowers and the foliage, and so as to produce an even-surfaced specimen, they are pitiable objects. Many of the finer soft-wooded Heaths, such as *hyemalis*, and others of the *ventricosa* and *colorans* type want no training whatever, but both grow and look better by being left alone, except being pruned or cut well back when done flowering. The hard-wooded close-growing section do need a little assistance from stakes, both to open them out and prevent the more straggly kinds from falling over the sides of the pots and getting into confusion, but a forest of sticks is not required to do this. We have seen such plants at exhibitions with so many stakes in them that their points could hardly find room on the surface of the pot. Such specimens are more like potfuls of stakes than plants. The hard-wooded kinds are seldom cultivated except in collections of Heaths. They are not generally useful to any one for affording cut flowers or for decorative purposes; hence we find that those who grow for the market confine themselves almost exclusively to the soft-wooded kinds, such as those before mentioned, and to which may be added the yellow *Erica Cavendishi gracilis*. All the erect-plumed varieties are handsome, and none of the hard-wooded tricolor kinds surpass the *ventricosas*, of which there are several varieties easily cultivated. It is a matter of little consequence whether they be supported by stakes or not, as by liberal treatment and clipping the flowering shoots back annually they can be retained in almost any shape desired.

What applies to greenhouse plants applies also to the shrubby stove species. We advise nothing to be neglected in the way of either training or staking that is likely to promote the health of the subject; but twisting the shoots in the most unnatural ways for the sake of bringing the plant into some fanciful shape, is neither demanded by good taste nor by the necessities of culture. A houseful of formally-trained specimens is not a pleasing sight, and we do not suppose such specimen-growers have ever yet entered a competition where an artistic arrangement was the object.

We cannot help thinking that the encouragement given to formally-trained plants, to the exclusion of more naturally-grown subjects in the same classes, has been more due to judges than to horticultural societies. It has been well understood among plant growers that there was no hope of success for anyone who entered the lists unless he conformed to the system of training encouraged—no matter how good his plants may have been otherwise. For example, a person might exhibit a large and well-flowered and naturally-grown *Pelargonium*, but it would have no chance against the pancake-shaped specimen, though it might be equal to the latter, or perhaps better, as a healthy, well-flowered plant; and it is just the same with stove or greenhouse plants. Were it only known that informally-trained plants would be encouraged and have a chance of success, exhibitors would be more numerous than they have ever been yet, and the prizes would not be distributed year after year amongst about a dozen of the same exhibitors.—*Field*.

Pachystoma Thompsoni.—The annexed engraving represents a remarkably handsome new Orchid which was exhibited by Messrs. Veitch at the last meeting at South Kensington, when it was

awarded a first-class certificate. The genus *Pachystoma* is a small one consisting of about eight species only, all of which are of Asiatic origin. They are very varied as regards habit, some having knotted and others fibrous roots. The plant illustrated resembles some of the Bletias in habit, and has flowers 3 in. across of waxy whiteness; the singular hooked lip is of a beautiful clear magenta hue with white grooves on the upper surface, the wing-like appendages are pale green, copiously freckled on the inner faces with brown; the column is also of the same colour. It is a native of West Tropical Africa, from whence it has been introduced by Messrs. Veitch & Sons, Chelsea, from a plant in whose nursery our woodcut was prepared.—W. G.

POTTING AND PLANTING BULBS.

To defer the potting or planting of bulbs to the late period at which that operation is generally done is a great mistake, as every day they are kept out of the ground is so much loss. Instead of forming fresh roots in the gradual way they would do, they are losing the juices stored up at the time when the tops ripened; and if a comparison of bulbs kept on dry shelves and in paper bags, and others left in the ground to come on in their own natural way, were made, the difference in favour of the latter would be most striking. This has been brought before me very forcibly this season with some Gladioli, which, owing to alterations being made in a border, were not planted till late. Near these were others that had been left in the ground all winter, the latter of which bore magnificent spikes, while many of the former did not flower at all, and the few that did so were not half the size or height of those that had not been disturbed, although, as regards depth of soil, and other circumstances everything was in their favour. There is an opinion among many that the corms of Gladioli are not sufficiently hardy to stand out during the winter; but that depends on the depth at which they have been planted, and whether the bed or border they may happen to be in is properly drained, or the ground in other respects suitable. To grow these beautiful flowers really well, trenching is one of the main things to be attended to, as a deep stirring of the soil such as this gives allows the water from heavy rainfalls to drain away instead of laying about them in a stagnant state, a condition that is sure to prove fatal to almost any bulbs or tubers.

The way in which we manage here in preparing for all plants of this class is to take out a good opening, and in turning over the earth to see that the top spit is laid in that position again, as to bring the bottom to the surface in its crude state takes years to get it in that condition in which roots will feed on it freely. What manure, however, is given is worked in below, so as to keep it from

coming in contact with the bulbs, none of which like it in close proximity to them, although all are greatly benefited by having it within reach of their feeders, and these appear to have a sort of instinct in finding it out, for they will travel a long way in search of it. Where leaf-mould or peat can be had in quantity they should be used without stint, as they not only assist materially in keeping the soil open, but all plants of a bulbous or tuberous-rooted description are fond of both, and for Lilies, peat suits better than anything else. These, therefore, do remarkably well in Rhododendron beds, or near the margin of these shrubs, the branches of which form just the natural shade they require; for although the upper portion of the Lily stems and flowers will bear and enjoy a fair share of the sun's rays, the lower part and the collar of the plant will not, especially those kinds such as *L. auratum* and others that form roots for their support just above the top of the bulbs. In growing these, therefore, this should not be lost sight of, for if they are not

well attended to with water and mulched during the summer season, when at all exposed to drying influences, much disappointment is sure to be the result. I am of opinion that thousands of bulbs of these beautiful plants are lost annually from a want of knowledge of their proper treatment in these respects, or long ere this they would be much more plentiful than they now are, seeing the large importations that have been made yearly, and that they are still sent over in greater quantities than ever. As their time of arrival is now at hand, I would recommend all who think of growing them, either in pots, beds, or borders, not to delay getting what they require, for, as already observed, every day now is an object, and the longer they are kept out of the ground the weaker will they be.

In planting any of the Lilies they should not be put in at less depth than from 4 in. to 6 in., at least all such as are strong growers; and of whatever kind they are, or whatever the soil may be in which they are to be planted, it is highly important that they have a handful or

two of clean, sharp sand placed around them, which answers the two-fold purpose of preserving the bulbs from excess of damp during the winter, and keeping them in a healthy, clean state.

In cases where beds are devoted to the growth of Lilies, it is almost needless to say that the tallest should be arranged in the centre, but what I would specially point out is how greatly the effect may be heightened by planting amongst them an equal number of Gladioli, the latter of which come into bloom later and last on till the autumn. I know of no grander bed or group of plants than these two make combined, and being of the same habit of growth they associate well together, besides which, the roots of the one never at any time unduly rob the other, and the treatment which they require is much about the same. I have just completed a border



Pachystoma Thompsoni (much reduced).

containing some hundreds of bulbs planted in three rows of each sort, and they will be worth seeing next summer and autumn; and those who would like to make some change from the present system of embellishing the flower garden will find that a few masses arranged after the same manner will be a source of much interest as well as objects of great beauty. Once planted, they may be left alone for years, and each season they will improve in strength and increase in numbers, when a division may be made to furnish other parts of the grounds. If the Gladioli are put in now they should be 6 in. below the surface, and surrounded with a pinch of sand in the same way as advised for the Lilies. To render all safe and secure from frost, a top-dressing of leaf-soil scattered over the bed will make snug for the winter, and if not planted at once the best way is to bury them in dry sand in a shed till March, so as to keep the air from them and maintain them in their present plump state.

As regards Hyacinths much that has been said respecting the above, so far as the preparation of the beds, planting, and soil is concerned, applies equally to these, as they, too, like plenty of depth and a rich run for their roots to ramify, and therefore it will not be necessary to go over that part again. These being plants of low growth always look best in small circular beds well raised in the centre; and if a neat, compact plant of some kind is placed at that part the effect is considerably added to, and a much better finish imparted. Not only is this the case, but an elevated surface lies drier and warmer, which is greatly in favour of bulbs having to lay in the ground all the winter. For borders groups of three look best, and the spaces between filled with Alyssum, Aubrietia, Pansies, or any other spring-flowering plants, and if backed up by shrubs, all these show up to great advantage, and make a border the most interesting and enjoyable part of a garden.

Bulbs in Pots.—Nothing imparts more floral life to a green house than bulbs in pots, and amongst them all Hyacinths stand pre eminent; and coming in as they do when other flowering plants are scarce, they are doubly valuable on that account. The best effect is produced with these by growing three in a pot, which may all be of one kind or otherwise, so as to show each other up, a plan of growing them that is particularly suitable when they are required for vase or window decoration. 6-in. or 7-in. pots are quite large enough for the purpose, as Hyacinths that are properly fed after they become well rooted will do just as well in these as in others of larger size; and, indeed, very often considerably better, especially when in the hands of those who are not well acquainted with their requirements as regards water, &c. The soil most suitable for this class of bulbs is a good fibry loam, with about a fifth of leaf mould, and just a dash of sand added, with which and proper drainage they cannot fail to do well. Why many do not succeed with them is in giving too stimulating a compost, whereby the base of the bulbs become injured by coming into contact with manure, a practice in all cases to be avoided, as it is almost certain to engender rot, and any assistance they may require can always be given in a liquid form, from which there is no danger of them suffering in the above-named way. In potting I make a practice of putting a pinch of sand under each bulb, as I find that it is a great help in warding off any tendency to decay, and in all cases, therefore, I should advise this being done as a precautionary measure, whether they are grown in pots or the open ground. The best situation for Hyacinths till they shoot into growth is a cold pit, or under the shelter of a north wall, where they can be covered over with Cocoa fibre, leaf soil, or anything of that kind, and protected from wet by means of an old light. In a place of this kind the tops progress slowly, and afford ample time for the roots to get well in advance, which is a great point gained towards securing fine spikes of flowers. Although the bulbs require to be buried and kept dark in the above-named way, they must not be kept under too long, or be too suddenly exposed to the light and air, otherwise they become drawn and bleached, and the transition, being so great, the tips of the leaves become injured and die off. The safest course is to remove the covering by degrees, that they may be gradually inured to the change by protruding their heads through; or if this has not been done, the next best plan is to throw a mat over the glass for the first few days, that what light they get may not be too strong or sufficient to hurt them.

Squills are a lovely class of plants specially adapted for pot work, and should not be forgotten, the peculiar shade of blue and the general formation of the flowers being of the most pleasing description. *S. bifolia*, *S. sibirica*, and *S. præcox* are the best and earliest, and are exceedingly choice in bouquets, or to work up for button-holes.

Crocuses, too, although not very enduring, are among the first harbingers of spring, and go far towards making a greenhouse gay, or to give a cheerful aspect to sitting room windows. To crowd them in pots, as is generally done, is to spoil half their beauty, as the delicate pencilling and the exquisite form of the petals are partly lost or hidden, instead of standing out clear and distinct as

they should. Five or six in a 4½-in. pot is quite sufficient, or double that number in a 6-in. pot; but for general purposes they look best in the smaller size, and should be placed at equal distances apart.

Tulips are likewise very amenable to pot culture, and make a gorgeous display at a very cheap rate, as the bulbs of some of the most showy may be had at a low price; and as they bear forcing well, and last long in perfection, they are very desirable for spring decoration. Tournesols are the easiest grown and the most brilliant, and for variety, *Rex Rubrorum*, *Duc Van Thol*, and *Mariage de ma Fille* are all good and more showy than the single kinds. Pot these in a pot in any soil, and treat them the same as Hyacinths.

S. D.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Fuchsia microphylla.—This *Fuchsia* well repays a little cultural care. When well grown in 6-in. or 8-in. pots it proves a most useful subject for either conservatory or room decoration during the late autumn months. Its habit is graceful, its foliage, though small, is dense and glossy, and its pretty rose-coloured flowers are produced in such profusion as to render it very ornamental. Nevertheless, like many other old-fashioned plants, it is but seldom seen in large establishments. It would, however, prove very acceptable when the beauty of the open-air garden is past, and when flowering plants are at a premium, for it is just at that time when the Tom Thumb *Fuchsia*, as it is called, is at its best. It should be placed in the open air during the summer months and liberally fed. It then becomes sturdy, and flowers in every way better than when grown under glass.—J. C., *Byfleet*.

Deep Pots Best for Palms.—We planted our Palms out-of-doors this year for the decoration of the flower garden. They were turned out of their pots, and in taking them up the other day I found that they had sent down roots perpendicularly to the depth of from 2½ ft. to 3 ft., about the size of straws, thus proving the necessity of using deep pots for this class of plants. Dr. Bennett, I believe, was the first to introduce deep pots, and without doubt his plants are perfection as regards health. I have noticed, too, that Palms planted out indoors in rich, deep soil, retain their leaves longer in perfection than those which are grown in ordinary pots.—D. S. GILBERT, *Weybridge Heath*.

The Cape Pond Weed as a Room Plant.—Few plants have gained a wider popularity than this beautiful aquatic. The ease with which it may be grown, combined with the beauty and delicious fragrance of its flowers, render it a subject very suitable for cultivation by all classes. We saw some boxes of it the other day growing in a cool house at Trinity College Botanic Gardens, and producing an abundance of its lovely flowers. The boxes were ordinary square wooden ones, half filled with good loam, in which the *Aponogeton* was planted, the remaining portion being filled with water. Mr. Burbidge informed us that they were only planted about six weeks, yet the plants were growing and flowering freely. We also found here this same plant growing in an ordinary inverted bell-glass, and we learned from Mr. Burbidge that he had grown and bloomed it most successfully in this way on several occasions in a sitting-room. The bell-glass is half filled with loam, in which is placed the *Aponogeton*; the loam is covered with fine sand, and the remaining portion of the glass filled up with water. An ordinary flower-pot—if nothing better can be had—will do to place the bell-glass in. It will be advisable to flood the water occasionally, say, three times a week with a watering pot on which a moderately fine rose has been fixed. The sand will keep the water from getting muddy. It treated in the way just described, this charming plant may be grown and flowered most successfully in the sitting-room.—*Gardeners' Record*.

How to Propagate *Cyperus alternifolius*.—The best way to propagate this useful decorative plant is to select some good heads, cut them from the parent plant with 1 in. or 1½ in. of stem attached to them, draw the leaflets through the hand, and cut them back to half their length; then put them into pans of water plunged in the propagating bed, keeping the water from 85° to 90°. In a very short time roots and shoots will start from the base of each leaflet. When the growths are about 1 in. long, they should be potted singly in 2½-in. pots in leaf-mould. Keep them well moistened, and when the pots get filled with roots, shift them into 3-in. ones, using a compost consisting of equal parts loam and leaf-mould. If grown as I have directed, they will soon make good plants for decorative purposes.—W. DANIELS, *Trowdeswell, Goudhurst*.

Flowering Bouvardias in Heat.—I am fully aware that *Bouvardias* will bloom after a fashion even late in the autumn and winter in a greenhouse temperature; but, having tried them both

with and without heat, I recommend that which I have found to give the best results. "Cambrian" says that in advising their being flowered in a brisk heat I recommend an expensive system. This seems like trying to make out a case. People who require flowers in any quantity through the winter have a place sufficiently heated to force them in, and it is no additional cost to give the plants in question the room which they want. Some of those who now write about Bouvardias would appear to have only recently become acquainted with them. Greenhouse treatment was what they received when first I knew and grew them, now over twenty-five years ago. Thus managed, like many other growers, I gave them up as not equal to other plants that took no more room or attention. Those who are satisfied with a flower whatever its condition may be have a perfect right to follow their own inclinations. But if "Cambrian" and others who advocate blooming these plants during the two last months of the year and through the winter—which is the time I wrote for—would bring their greenhouse-grown flowers to Covent Garden, they would discover their value, or rather want of value, for no one would give anything for them, from the simple fact of their being so deficient in purity of colour and general appearance as compared with those brought out under warmer conditions, to say nothing of the plants grown in heat producing double the amount of flower in a given time, a fact alone well worth consideration.—T. BAINES.

— Although I appreciate Mr. Baines' notes on most subjects, I differ from him very much as regards Bouvardia culture. If my memory serves me rightly I think his last note on these plants last season was to the effect that he found them not to produce many flowers beyond those formed on the plants when planted out. I, however, still say that good and useful Bouvardias can be grown and had in bloom all through the winter without subjecting them to stove heat. From plants planted out and lifted in autumn in 1878, we had Bouvardias in bloom till the end of February, and they were never subjected to a higher temperature at night than 50°, and that only on mild nights. This season I have grown a larger quantity than hitherto; some we cut back in March, and put them in heat to start them for blooming in summer; others we cut back in April, potted them, and put them in a cold pit to start, and when the summer was far advanced, put them again in some cold pits, taking off the lights by day and on all favourable nights, only putting them on when the rain was too much for them. These are and have been for some time past, full of bloom; others, cut back at the same time, were planted out with some cuttings, which were struck in spring in a pit, so that we could put the lights on them if needed. Last season they never had a light over them once from the time of planting to the time of taking them up, which was September 6th. They were then put into a cold pit, and when established every point was pinched off them, and now some of the cut-back plants are showing from forty to fifty trusses of bloom, some shoots showing three and four each. Now none of these plants have ever been in a higher temperature at night than 50°, and sometimes 45°. I only name this to show that Bouvardias can be grown successfully on the cool system. The sorts I grow are *B. elegans* and *B. Vreelandi*.—J. C. F.

THE KITCHEN GARDEN.

DEEP CULTIVATION.

THE cultivation of the soil is by many considered to be a commonplace affair, and although strength of arm is more required than skill in trenching, digging, or ploughing, I am confident that cultivators who get over this part of their work by merely putting a fresh surface on the ground, leaving the real rooting medium unbroken, will have an equally easy task in harvesting their crops. We may help crops by surface stirring after they are planted or sown, but it is only when the ground is bare that we can lay the foundation of really satisfactory growth. The value of deep cultivation is frequently discredited though not sufficiently considering the nature of the soil to be operated on; when the subsoil is hard or inclined to a clayey adhesive character, it follows that if too much of it is brought to the surface in a crude state, more harm than good for the first year or two may be the result, as tender crops requiring a friable soil or seed bed may not succeed so well as before, although the land would doubtless be ultimately benefited by the deep culture. This is not, however, the fault of the trenching, but the mode in which it is done.

We are at present trenching up some old beds of Strawberries and land that has been occupied by bush fruits for many years. We find in this case the lower spit looser and more friable than that of the top; we therefore bring the whole of the lower spit to the top, and after loosening the bottom of the next trench, we pack in the

old Strawberry crowns and runners and green garden refuse of any kind, and a large quantity of fresh long stable litter from which the Mushroom material has been eliminated. This takes a considerable time to decay; the land feels the benefit of such a dressing for years, and such a depth of loose enriched feeding ground is provided that, let the seasons be ever so dry, the crops can find moisture below them; and if extremely wet, the surplus water passes rapidly away, as the rough material put in acts as drainage, until, rotting away, it eventually becomes food for succeeding crops, to be again brought to the surface as soon as fertility there begins to decline.

We have some land close by that has only been broken up a few years, and although originally all one sort of soil it has not yet been sufficiently cultivated to allow of the lower spit being brought to the top with any advantage. We shall, therefore, instead of bringing it to the top, fork it over in the trench, working in leaf-mould, ashes, or old potting soil, which is of a light sandy character, and after a few years a sufficient depth of friable soil will be obtained to suit any kind of crop. By this means the heaviest and most unmanageable soils will become the very best that can be obtained for vegetable or fruit culture, as light sandy soils that are easily got into working order are, as a rule, soon exhausted, and need more frequent additions of rich farm-yard manure to enable them to produce fine succulent vegetables in dry seasons; and fruits—whether Strawberries, bush fruits, or standard trees—never attain the size and vigour in light soils that they do in loams in which clay predominates more than sand. The advantages of getting this sort of work done at this season of the year are manifold, as the winter rains pass readily through the newly-moved soil, and enrich it, while the frosts pulverise the surface, and by the ordinary seed-time it is fit for being planted or sown with any sort of crop with every prospect of success. Any kind of refuse or garden litter may be profitably used as manure, and what would make rubbish heaps, if buried deeply, soon becomes converted into food for future crops.

JAMES GROOM.

Garden Thyme.—When looking through the garden at Croome Court the other day I noticed amongst the herbs a good bed of Thyme, not injured in the least by the frost. I asked, How is it this looks so well? The reply was "We always sow in spring a small quantity of seed which grows fast. The produce of this we pull up for drying, so as not to cut the plants in the beds too late before winter, leaving plenty of well-ripened growth, which resists the effect of frost better than soft shoots."—J. C. F.

Chickens v. Slugs.—I have in former years had a great dislike to poultry of any kind in gardens, but the past season has been so exceptionally favourable for the ravages of slugs, that we have been glad to avail ourselves of any means of reducing their numbers within our reach; and having a brood of chickens that always made their way on to the cultivated plots as soon as set at liberty, I have since allowed them to have free range of our kitchen garden, and at the first break of day they may be seen regularly searching the rows of Cabbages, Broccoli, &c., and picking up slugs, worms, and grubs, and without doing any damage, as they betake themselves to dry spots under large evergreens to scratch and work among the dust, as the stiff soil of our kitchen garden has not been dry enough this year to suit their taste in that respect. I find young chickens the most industrious in searching after insects and other garden pests, and where these abound I feel confident that poultry in limited quantities might with advantage be admitted to the kitchen garden for the greater portion of the year, as during the hottest months, when bush fruits and other crops which they would be most likely to destroy are ripening, the slugs are least to be dreaded, and the poultry could then be excluded. In almost any position broods of young chickens might be utilised by keeping the hen in a coop near the spot where the chickens were required to search. They will soon find out where there is any food for them, and any ant hills, if first loosened up with a spade or fork, will soon be cleared of both the ants and their eggs, as chickens are especially fond of them.—J. G. L.

Veitch's Autumn Giant Cauliflower.—This is very fine at present with us, the heads being large and close. Both it and our Brussels Sprouts are remarkably free from club, having been sown and pricked out in heavy soil brought from a distance, while our other Cauliflowers, &c., sown in our common garden soil have been very much affected with club.—J. MILLER, *Clumber*.

Criterion Pea.—Amongst several late Peas grown here, I find none to surpass Criterion and Ne Plus Ultra for productiveness, for flavour, and colour when cooked. We have to-day (October 20) gathered a good dish of Criterion from a row from which we gathered the first dish on August 9, thus showing its bearing propensity. Others sown late in June are now carrying a heavy crop of well-filled pods, the contents of which are now fully appreciated; but I cannot bear out "Reader's" experience of Culverwell's Prolific

Marrow; with us it is much inferior to the above both in flavour and colour. Although a very productive cropper, it has not such large, well-filled pods as the former. Were I asked to name the two best late Peas, I should say Criterion and Ne Plus Ultra.—G. S., *Sandbeck Park*.

THE FLOWER GARDEN.

VARIEGATED GRASSES.

COMPARATIVELY few Grasses possess true variegation, if we take into consideration that they constitute one of the largest families of plants, and also one that has the widest distribution. If we omit the white-grooved leaves which characterise several genera, one per cent. of all known Grasses would include all the variegated forms. The variegation usually consists of longitudinal striations, or in one instance, of cross bars of white or yellow, or rarely red, upon both leaves and sheaths. The red colour is sometimes due to the presence of colouring matter in the leaf, but more frequently to a bronzing of the foliage by exposure to strong light. In the majority of cases, the varieties have a weaker constitution than the normal forms; but to this exceptions occur in the parrot Maize and the striped Bamboo (*B. striata*), where they, under similar conditions, attain the dimensions and vigour of the typical plants. Generally speaking, those plants in which the green colouring matter is most wanting recede further from the type in constitution, as it is only through the agency of this substance that the plant is enabled to add to its fabric. In some, the variegation is permanent under all circumstances, while in others it is very transient, often running out and becoming green under conditions favourable to luxuriant growth.

It is only recently that any attention has been paid to variegated Grasses, or indeed, Grasses of any description, except for lawns, at least so far as horticulture is concerned, though from their many attractions they deserve a prominent place in all gardens. Probably the best known and the most ornamental is the Ribbon Grass (*Phalaris arundinacea* var.). Its variegation, which is constant, is much improved by cultivation; it is also useful both as a border plant, and for indoor decoration, and, as it delights in wet places, it might be used with advantage as an aquatic or bog plant. The type is a true aquatic, inhabiting stagnant pools and ditches, and is with the exception of the common Reed (*Arundo Phragmites*), the tallest and handsomest of our native Grasses, frequently reaching 8 ft. in height, with long tapering rosy panicles. There are two species of dwarf white variegated Grass at present used for ribbon-bordering, namely, Rough Meadow Grass (*Poa trivialis* var.), and Cock's-foot Grass (*Dactylis glomerata* var.); the former, which is an erect growing plant, very often reverts to the type during wet seasons; the latter is a spreading plant with coarser foliage than the former, but its variegation is more permanent. They are both native Grasses, which also include five others deserving of notice; these are Soft Meadow Grass (*Holcus mollis* var.), a plant with downy glaucous foliage striped with creamy-white, requiring a moist sandy soil, and to be transplanted annually; Fox-tail Grass (*Alopecurus pratensis* var.), which forms a hemispherical tuft of long pendulous leaves with yellow and white stripes, which are often confined to the margins only; Melick Grass (*Melica uniflora* var.), a dwarf plant 6 in. to 9 in. in height, with slender recurved leaves with pale yellow stripes, the innermost of which frequently become entirely yellow; Bent Grass (*Agrostis vulgaris* var.) which, like the type, is a creeping plant, and unless kept within bounds, is liable to become a nuisance on light soils; its variegation is nearly white, and irregularly distributed, but embraces nearly half of the foliage; and lastly, the Blue Moor Grass (*Molinia cœrulea* var.) which is the most elegant of the five. Its leaves, which are rigid and erect, and form dense tufts 1 ft. to 2 ft. in height, are distinctly marked with canary-yellow stripes, the flower stalks and branches of the panicle are similarly marked, while the spikelets remain a bluish green as in the typical plant. In addition to the varieties of *Eulalia japonica*, *Arundo Donax*, *A. mauritanica*, and *Zea Mays* described at p. 322, there are two variegated forms of the Pampas Grass, known as *G. argenteum marginatum*, with marginal golden stripes; and *G. Stenackeri variegatum* with distinct white margins, both of which are highly ornamental, but on account of being difficult to propagate they remain very scarce.

Of the dwarf arborescent Grasses, the most noteworthy variegated forms are Fortune's Bamboo (*B. Fortunei* var.), which is of a shrubby habit, with thickly set silvery striped leaves; and the green striped Bamboo (*B. viridis striata*) a taller plant than the preceding, with larger leaves of a primrose yellow colour striped with green. These and all the foregoing are quite hardy. Among those requiring a warmer temperature we have the variegated Creeping Panicum (*Opismenus imbecilis variegatus*), which is so useful for trimming hanging baskets, for vase decoration, or to associate with cut

flowers. As a basket plant it forms pleasing combinations with such plants as *Coccocypselum discolor*, *Impatiens flaccida*, or *Æschynanthus miniatus*. Its variegation is of the purest white when grown in the shade and in a moist atmosphere, but when exposed to full light it is richly suffused with rosy crimson. Striped Crab Grass (*Stenotaphrum glabrum variegatum*) is also a creeping Grass, forming runners 3 ft. to 4 ft. in length, and giving off a pair of tufts of leaves at each of its joints, which occur at regular intervals. Its leaves are strap-shaped and profusely striped with creamy white, those of the central tuft being much larger than the lateral ones. It is a more robust plant than the preceding, and very different in character, but may be used for the same purposes. The typical plant is used as a lawn Grass in Brazil, for which purpose it seems to be well suited. The silvery plaited Panicum (*P. plicatum* var.), is a tall growing plant, with irregular white stripes down its broadly ribbed leaves, and white panicles.

Several Grasses present a bluish-white or hoary appearance, which differs from true variegation by being a surface covering only. Some few of this class are very effective in combination with darker foliage. The principal are blue Fescue Grass (*Festuca glauca*), spiny Fescue Grass (*F. pectoria*), glaucous Sheep Fescue (*F. ovina glauca*), blue Meadow Grass (*Poa cæsia*), glaucous Meadow Grass (*Poa pratensis glauca*), large Lyme Grass (*Elymus giganteus*), European Lyme Grass (*Elymus europæus*), and Seaside Wheat Grass (*Triticum junceum*).
C. M.

FLOWER GARDENING IN BAD SEASONS.

FOR several successive summers we have had anything but favourable weather for the style of flower gardening which has for some time, and until recently, been the general fashion. It is no doubt still looked upon by many as the highest development of floral art, and so long as it is kept within due limits and confined to places where it will not be incongruous with the surroundings, it is not so objectionable. In order that these displays can be considered satisfactory with the description of plants employed in these summer combinations, not only should the weather in spring be genial, but the summer seasonably warm and prolonged. If in spring the weather is cold and otherwise unfavourable to the progress of the plants immediately after being planted out, however bright the effect may ultimately be for a time, its duration is far too short to compensate for the waiting and amount of labour incurred. This is nothing more than has often been urged before by those who were not unqualified advocates of the system, but the ungenial seasons we have lately experienced, and more especially the present, have done much to convince those who have hitherto refused to consider the subject reasonably. There invariably appears to be an infatuation attending fashion, which for a time goes far to obscure even the most obvious facts, and fashionable flower gardening has been no exception to the rule. The failure has been greatest where such plants as *Pelargoniums* have been extensively employed, and which in most places have presented a thicket of leaves with a paucity of flowers. In many cases the beds of spring flowers were in their best condition just at the time it was necessary to remove them, so as to make room for the summer occupants; and in not a few instances, if the spring subjects had remained undisturbed the general effect would have been better. The carpet bedding has fared better, except in the case of the tender plants, such as *Coleuses* and *Iresines*, which have been failures generally. The hardier subjects have succeeded fairly well, on the whole; carpet bedding has been much the best both the last summer and more particularly the present. Some of the arrangements in this style are undoubtedly very effective and beautiful where the patterns are not too formal. Several narrow scroll designs I have seen, whose gracefully curved lines, formed of sufficiently subdued colours, were very elegant, and nothing in their way could well be more charming. There is no doubt that these successive unfavourable seasons for the ordinary description of flower gardening, now so long practised, will have the effect of bringing the carpet bedding style more into general favour; but it is not to be supposed that this kind of arrangement is likely to supersede the use of flowering plants. Flowers have a charm, but, irrespective of this, there is a feeling associated with the very name that commands them to all who love or take a real interest in gardening, and I cannot believe that even fashion can, for any length of time, induce many to tolerate the misnomer of a flower garden without flowers. I think that carpet bedding must always hold a subordinate position to flowers, independent of the amount of labour which it entails in propagating and growing plants extensively. Still, there is no reason why a combination of leaf and flower colouring should not be carried out, such as has not hitherto been attempted; I do not mean the associating of strong-growing plants more or less coarse in habit, but a judicious selection of the most elegant foliaged plants with such low-growing subjects as may be chosen for their form, colour, and continuous disposition

the sun may yet impart, the radiation of the walls will make it the more effective. Push on planting, lifting, and root-pruning, as the present is the best season of the whole year for such work, a fact proved by the rarity with which trees now operated on fail to produce a full crop of fruit the following season. Gooseberries and Currants, being divested of foliage, may now be pruned. It is usual to defer the pruning of Gooseberries till spring, because birds are apt to make an onslaught on the buds, but I look upon such a postponement as an invitation to the birds to attack them, and therefore recommend that pruning be done now, and if afterwards the trees are splashed over with a mixture of soot and lime, with cow manure added to cause adhesiveness, the composition will not only be distasteful to birds, but also kill Lichen and Moss, which usually abound on neglected fruit bushes. When pruning, select the best-ripened wood for cuttings, which may be tied into bundles and heeled in to give profitable employment in bad weather in preparing them for insertion, which should be in rows 1 ft. apart and about 6 in. asunder in the rows. All the buds should be picked out of that part of the stem that is inserted in the ground, or there is a tendency to produce suckers, and each tree is always best when grown with only a single stem. Old plantations of all kinds of small fruits will repay any attention that can be afforded them at this season, such as the thinning out of useless naked wood, surface forking the ground, and afterwards giving it a good dressing of well-rotted manure, to be left on the surface to be washed in by the rains. Raspberries especially should annually have such a dressing. The season being so late, there are yet several kinds of Apples and Pears to be gathered, and as they are now in danger from severe frost they should be got in, ripe or unripe. Keep the fruit room well ventilated on every favourable opportunity till the fruit has become thoroughly dry, but afterwards preservative conditions are best assured by the maintenance of a somewhat confined atmosphere.—W. W.

Extracts from my Diary.—November 3 to 8.

FLOWERS.—Placing bedding plants, Primulas, Cinerarias, Cannas, and Bouvardias in Vineries. Re-arranging plant-houses. Sponging Poinsettias and Stephanotis. Picking dead leaves off Pelargoniums and bedding plants. Cutting back old plants of Pelargoniums, and placing them thickly in boxes in Vinery.

FRUIT.—Cleaning Peach trees in early forcing-house. Tying Raspberries to wooden frame, forming the letter V with the canes. Mixing up paint for dressing Peach trees, composed of clay, sulphur, soap, soot, and Gishurst Compound. Started pot Vines.

VEGETABLES.—Preparing cold frame in which to plant Cauli-flowers. Getting in next Mushroom-bed, and looking over others, cutting those fit for use. Sowing Hathaway's Excelsior, Vick's Criterion, Little Gem, and Acme Tomatoes in heat. Pricking out Cauli-flowers from seed-beds into frames to stand the winter. Digging main crop of Beet, and storing it in clamps. Cutting all Self-protecting and Autumn Giant Broccoli ready for use. Chopping up Cauliflower stumps, and manuring ground with them for digging. Sowing Barghley Perfection Tomato in pots for planting out for early spring work. Spawning Mushroom bed in house, and making up first bed outside in the shape of a mound 20 ft. long and 5 ft. high. Sowing Osborn's French Bean. Tying and thinning winter Cucumbers. Digging south border for Peas. Sorting over Potatoes in store-room.—R. G., *Burgkley*.

Women as Horticulturists.—The practical difficulties with young women searching for a vocation is that they have no capital, no special training, little knowledge of current commercial needs, and no disposition to enter untried fields of labour. They are ceaselessly demanding new avenues for employment, under the impression apparently that by talking about them vigorously these new avenues will open of their own accord. Assuredly fruit-growing, flower-culture, and kindred pursuits offer no great obstacles to young women with a small measure of determination and a little activity of imagination. The great point with us all is to be able to think out things, and this is what we mean in this instance by imagination. Neither men nor women are likely to gain much success in established vocations, much less enter upon untried ones, unless they have ideas, the power to construct, to form, to plan, to discover the relations between facts and possibilities of facts, to detect significances and follow them to their logical outcome. In flower-growing, however, there is this advantage—many ladies have natural taste and a little smattering of the art, and hence it would not be difficult for them to gain sufficient knowledge from books and practical experience in their own gardens to make a test of the suggestion which the writer in "Macmillan" makes; and eventually training schools may be established in which young women could enter. The thing is to make a beginning; and to make a beginning the very first requisite is practical intelligence.—*Appleton's Magazine*.

TREES, SHRUBS, AND WOODLANDS.

PRUNING AND LOPPING TOWN TREES.

As the season for lopping and pruning trees where necessary is approaching, a few remarks on the manner in which this work should be done may not be out of place, and this is rendered the more necessary in town gardens where trees are scarce, and where they are so frequently ruthlessly and mercilessly hacked and hewn by inexperienced persons as to become miserable eyesores instead of what they should be—handsome and acceptable objects. In traversing London it is distressing to see trees which, with proper management would have formed beautiful specimens, reduced to offensive skeletons or worse than useless pollards, and the evil of which treatment is the more apparent now when they are denuded of foliage. The pleas put forward for thus mutilating trees are various, as, for instance, the obstruction of light, injury to adjacent roads, or some Utopian sanitary idea. In the case of young trees it may be to protect them from injury from high winds, or with the object of inducing a spreading habit. These reasons are frivolous in every case, except where trees are planted in places totally unsuited for the purpose. In the case of London squares an ample roadway surrounds them, so that trees planted at a proper distance within the fence will in no way interfere with the light, whilst in regard to the sanitary aspect and the deterioration of roads proper scavenging is an easy remedy. With respect to newly-planted trees in streets and elsewhere, they should have such supports as to render pruning unnecessary; their natural habit being thus preserved, which, in my opinion, is the special feature needful in well-managed trees. Another important matter which should also be taken into consideration is that in many places where from thirty to fifty years have been sufficient to produce fine specimens, it would now probably require a hundred, even if that period would suffice to bring to the same forward state, London proper having been during the last half century imprisoned by outer or greater London, rendering the growth of trees within it less satisfactory. It is, therefore, the more necessary to preserve intact the few which remain in good condition.

The list of trees suitable for town planting is not a long one, and these require but little pruning, and that judiciously done. It is necessary that the lower branches should be removed to a sufficient height in order that they may not interfere with the carriage traffic in the streets; it is also essential that dead branches should be cut out; but, further than that, there is probably not more than one case in a hundred in which it is necessary to use pruning tools. Plane trees are now admitted to be amongst the most useful for town planting, and I would urgently recommend that they be allowed to grow naturally, that is, without any pruning whatever. I have particularly noticed that those which have in no way been interfered with are by far the most beautiful. The principal care required being to protect their stems from injury and keep them in an upright position, this can be ensured by suitable guards and proper care in staking; should there be two leaders, the weakest should be removed and the remaining one so tied that it may be induced to form the main stem. Under no circumstances should Planes be headed back, that is, have their leading and lateral stems cut down; of all systems of lopping and pruning, none are more objectionable, unsightly, and mischievous; occasionally a few of the weak branches may be removed to give air and light to the head. This is only necessary, however, where from the effects of soil and situation such growth is produced in abundance. The Plane taken altogether may be safely considered to require no pruning. Next in rank as suitable town trees stand the Poplars; most of the spreading kinds, when compared with Planes, may be pruned with impunity without damaging their general character; still the same course should be followed as recommended for Planes if we would retain their special features. These trees will be found to have a tendency to grow very much out of the upright, whatever care may be exercised in staking them when young. It is therefore absolutely necessary to shorten those branches which have as it were a tendency to overbalance the proper contour of the tree; rapid growing trees are more liable to this deformity than others. This is also the case with trees which are so placed as to have the light partially obstructed on one side, the curvature being caused by the greater rapidity of growth on the darkened side. In order to counteract this, as before mentioned, the branches should be cut back to such a position as will leave sufficient wood to replace the limb removed, and never to a point of the branch that is perfectly bare, as that would induce the growth of a number of small shoots which would not only be useless but greatly disfigure the tree.

Planes and Poplars which may have spread their branches too near dwellings, may have them shortened in the same manner without in any way impairing their general appearance. The

Plane once damaged by unskilful pruning never, as a rule, regains its natural form, and is often worthless as a tree. Two other trees, namely the Lime and the Chestnut, are also extensively planted in towns; indeed they are great favourites with many; they burst early into leaf, and as it were chase away the winter, the remnant of which is always reluctant to leave us in early spring. They are better adapted for planting in the outer circle of large towns than in thickly-populated districts, in which latter they do not thrive; moreover, they lose their foliage early. No trees are used worse than the Lime; they are pollarded or lopped in all kinds of hideous forms, or pruned into screens of various shapes, examples of which meet one at almost every turn. Few trees are handsomer in form than the Lime when allowed to grow naturally, and being dense in respect of foliage, would answer every purpose for which inexperienced persons think it necessary to treat them as stated above. The only pruning required is to take out the weakest branches close to the main stem, of which, in well-grown trees, there are usually a large quantity. If, as may sometimes be the case, it is not desired that the trees should exceed a certain height, they can be stopped without spoiling their beauty, a property possessed by a few kinds of trees only. The Chestnut with its ridged wood, is another tree which requires no pruning, except in rare instances; when one bough lies upon another, the one causing the least change from a natural appearance may be removed. The Sycamore, Elm, Acacia, and, indeed, all kinds used in town planting, should only be pruned with the utmost caution, and that when absolutely necessary only. Certainly very many trees have been perfectly ruined by too free a use of the saw and knife, and it may often be observed that young trees which appear extremely vigorous for a few years after being planted lose a good deal of energy at the end of ten or twelve years, and are quite unable to recover the effects of the severe pruning to which they may have been subjected during the first six or eight years. This is more especially the case with trees the sites for which have been prepared with more than ordinary care. I maintain, therefore, that trees should, as a rule, be allowed to grow freely and naturally, and if pruning should be in any way requisite, to wait until the trees are thoroughly established. In taking off branches, especially the larger ones, the cut should be under bevelled, to prevent moisture accumulating on the stump left, which would cause decay and injury to the tree. They should also be cut at a distance of from 3 in. to 1 ft. from the main stem, never quite close to the tree, the distance being in proportion to the size of the limb taken off. These remarks are specially adapted to the management of trees planted in streets, squares, parks, and other public places.

C. DENNIS.

WOODLAND WORK FOR NOVEMBER.

PLANTING will be the principal work of the month, and every fine day should be taken advantage of to push forward that work with as little delay as possible. By planting the wettest portions during fine weather, and leaving the light and gravelly soils for the more unfavourable seasons, little time need be lost so long as frosts keep off. Exposed situations upon light soils should be filled up before winter, and the ground made as firm as possible to prevent the plants being uplifted by frosts. When such land is planted late in the spring the trees are apt to suffer very considerably from summer drought.

Mixed plantations may be thinned after the middle of the month, Oak being reserved for spring, felling when the bark will run freely. Very few of the winter-felled trees, except Larch, should have their bark left on them, as this decays rapidly and retains the water, and also harbours injurious insects. Lime, Plane, Beech, Maple, and Sycamore should be cut up early and set up for seasoning. In thick plantations only experienced hands should be entrusted with tree-felling; and the timber should be cut off as close as possible to the ground with the cross-cut saw, grubbing being impracticable without doing considerable damage to the roots of others.

Gather tree-seeds as they ripen and attend well to the keeping of such as are not sown at once. Where the cones of Pine and Fir trees—Scotch, Spruce, and Larch—will shake easily from the trees, these may be gathered at once and well dried before being put away in heaps. By being thinly spread out and occasionally turned they will dry rapidly.

Old spreading hedges may now be ribbed in where the situation is not too much exposed, but where such is the case the operation is better deferred until early in the spring. Laying or plashing may also be proceeded with, and young Hawthorn hedges may still be planted out. Quicksets which have been two years transplanted may be inserted in double rows about 6 in. or 8 in. apart and the same distance in the lines, and afterwards cut off near the ground. If allowed to grow for two years they may then receive an annual trimming, about 6 in. of top-growth and 2 in. of side growth being

left each time. In this way, upon a favourable soil, a good hedge may be obtained in six or seven years. Where the soil is too light and poor for Hawthorn, Beech may be substituted, but this should not be cut back at the time of planting.

Clear out watercourses and ditches and collect leaves, forming composts of all refuse vegetable and animal matters. The addition of some fermenting stable manure, old mortar, chalk, shell sand, or calcareous matter of any kind, will greatly enrich the compost if it be turned occasionally. Lime used in compost has a much more marked effect upon a rotation of crops than when applied alone. Within certain limits all composts containing calcareous substances enrich with age.

Falls of coppicing should now be allotted ready for sale. The sooner these are sold the greater the opportunities afforded to the purchaser for making an early clearance. The smaller the lots the greater will be the aggregate price. Clearance roads should be staked out ready for brushing, or bottoming with faggots, and all boundaries should be distinctly marked with paint. Tillars should also be ringed with paint and numbered. The necessary restrictions as to times of cutting and clearance should also appear in the particulars of sales.

Draining, trenching, and holing for spring planting may still be continued in the woodlands; and in the nursery cleared spaces may be worked down for seeds and seedlings, or be roughly dug and laid up for a winter's rest. Strong layers of any kind may now be planted out in the woodlands; and before other layers are made the stools should be forked round, and should also receive a dressing of manure or fresh soil.

All wood-rides should be well brushed up preparatory to pheasant shooting, as nothing interferes so much with that sport as straggling branches hanging over and across narrow rides. All foresters who value their plantations should thus give every facility for killing those pests of their woodlands, viz., hares and rabbits.

A. J. BURROWS.

Age of Trees.—The late Mr. Menzies, deputy ranger of Windsor Park, than whom no one had studied trees more, has often interested me by information about the size and age of forest trees when with him amongst them. Much of this information will be found in his large illustrated work on "Forest Trees and Scenery." It was his opinion that it is impossible to determine even approximately the age of Oaks when the trunk is decayed. He thought that the shell of the tree near Cranbourne in Windsor Forest (where there are many similar shells of huge old Oak trees), which goes by the name of William the Conqueror's Oak, might probably belong to that date. Beech trees, he said, are not nearly so lasting; and though I often asked his opinion as to the age of the larger Burnham Beeches, his answer was always "Impossible to say." It may interest Mr. Heath to know that on Smith's Lawn, near the obelisk in Windsor Park, are the remains of a Beech tree larger than any of the Burnham trees. An account of this tree and of many other remarkable trees will be found in "Grigor's History of Arboriculture," published in 1868—a most interesting little book, and the best I know on the subject. I may add that the age of large Elm trees, being comparatively short is generally definitely known; the large Elm trees in Eton playing fields are little over 200 years old; a record of their planting is in the college archives; the Long Walk in Windsor Park was planted in 1688. Both these sets of trees are fast perishing from old age. Half the Elm trees in Eton playing fields have been replaced by young ones within my memory. Elms die first at the root, and are blown down generally before the trunk has begun to decay.—C. WOOLLEY DOD, in *The Times*.

The Size and Age of Trees.—I fear that much must be left to conjecture and tradition with regard to the age of the most celebrated of our forest monarchs. Herne's Oak, I think, is now a wreck if not removed, but in the memory of most of us it was alive if not in full vigour, a wonderful tree, to celebrate which Harrison Ainsworth wrote his historical novel "Windsor Castle." I believe visitors can still be shown the identical tree beneath whose branches the second Norman fell. King Charles II. has still his Oak, i.e., supposing the sightseer sufficiently credulous to believe it; as to Rochester's Oak there can be little doubt. But who, in this tree-loving country, can tell us something that can be depended upon as to their age? No one. It may be said that when a tree is felled the number of rings which it contains will give within a year or two its age. True, so far as the test goes, but useless after a century or two has elapsed. Of course Mr. Vernon Heath has, with all of us who take delight in woods and forests, tried to verify that test. I have not seen the Burnham Beeches, and, therefore, can only argue by comparison, viz., that some very large handsome ones on our own land in Dorset, from all I can hear, were, to all appearance, quite as large

ground, shall be on a level with the base of the trunk. Next fix the 10 ft. pole at such a further distance from the tree (and in a line with the short pole and the tree), as that the top of the longer pole shall be on a level with the top of the shorter pole and the base of the tree; AC on fig. 12 indicates the position of the longer pole. Next take up the short pole and put it into the place occupied by the long pole; AB will then indicate the position of the short or 5-ft. pole. Now place the 10-ft. pole in a line between the short pole and the tree, and at such a distance from the short pole as that the tops of the two poles shall be in a line with the top of the tree. Then look horizontally across the top of the short pole AB and read off upon the long pole MO the height MP; this measurement, being the same as that of NB, must be subtracted from AB (which is 5 ft.), and we thus get the measurement of AN. Now measure the ground line AM, and having AM and AN, we find, by the rule explained before, the distance NM ($\sqrt{AM^2 - AN^2} = NM$) which is the same as BP. Having just read off the length of MP we have only to subtract it from MO, which is 10 ft., and we thus get the length of PO.

With the lengths of BP and PO at our disposal, it is evident that a rule-of-three sum will give us the height from F to the top of the tree if we only knew the length of the line BF. This is readily found, inasmuch as BF is the same as CE, and CE is the base of the right-angled triangle ECA, of which the perpendicular AC we know is 10 ft., the hypotenuse AE we can measure and then $\sqrt{AE^2 - AC^2}$ gives us CE or BF.

Lastly, we have to work out the proportion sum, as BP is to PO, so is BF to the height from F to the tree-top, from which we have only to subtract 5 ft. (which is FE) and we arrive at the exact height of the tree.

In the example of tree measurement last given, it has been assumed that the incline and the dimensions of the tree will allow of the measurement being made in the way that has been explained. But instances will often occur in which the incline may be too steep or the tree too high to admit of this method being exactly followed; nevertheless the principles upon which the measurements are taken and the calculations are made will be the same, and the chief deviations from the method described will consist in the necessity for repeating the first stages of the observations by placing the 10-ft. pole a second or a third time beyond the short pole, each time making the 5-ft. pole take the place of the long one. W. T.

TRANSPLANTING TREES IN AUTUMN.

TRANSPLANTING is a subject of no little interest to proprietors who, as a rule, concern themselves a good deal about their woods and ornamental plantations. There are those who advocate transplanting in autumn, and others who maintain that spring is the best time for such work. Something can be said in favour of both ways, but much depends upon circumstances and the kind of subjects to be dealt with. It is safe and advisable to transplant in autumn, if it be done in good time; and there is every chance of good success attending the operation, with a great variety of kinds, should the ensuing winter prove mild and moist; but if it be severe, and the frosts prolonged, many kinds of newly planted trees are likely to suffer and die, particularly if planting has been delayed till about the end of November or later, as by that time the ground is too cold to promote root action, and the trees, consequently, have no chance of getting partially established before winter is upon them; and if they happen to be much cut and mutilated at the root they are in a still worse plight, being then in little better condition than a cut branch inserted in the ground. Trees that are moved with good balls of earth to their roots are generally safe, even in severe winters; but good balls and plenty of roots cannot be secured in some cases. On the other hand, it is urged against spring planting that, should the summer prove warm and dry, the trees are just as likely to suffer from these causes, unless they can be abundantly supplied with water, which, of course, entails a great amount of labour. Probably the advantages of transplanting in autumn and spring are about equal in the case of evergreens, while deciduous trees have the best chance when moved in autumn—just when the leaves are about to fall; and this being so, of course those trees which shed their leaves first should be first dealt with. Some recommend September as the best month for autumn operations in the case of evergreens; and perhaps it is, in a general way, as by that time the current season's growth is tolerably hard and mature, and not so likely to shrivel. October is also a good month, but later it is not safe to wait. What cannot be done before November had better be left till the following spring. We have transplanted trees and shrubs every month in the year, when compelled by circumstances to do so; and, judging from experience so gained, we have come to the conclusion that the most favourable times are September and October in autumn, and from the middle of March till the middle of May in spring; but the latter

dates apply to the north more particularly. In the south, operations might probably be begun and end a fortnight sooner.

During the past few years we have noted the effects of transplanting at different periods upon a great many trees and shrubs. Hollies, Yews, Deodars, and Laurels, &c., transplanted from the beginning of December till the end of January, when the weather was favourable, just succeeded according to the size and entirety of the ball of soil secured with the roots. The ground in many places being shallow and stony, it was next to impossible to get balls, and in all such instances the trees have suffered by removal, and some have died outright, especially Hollies and Laurels of large size. Very few deaths—only one, I think—have, however, occurred amongst the trees moved in September and October; but in all cases the spring plantations have done the best. Of a number of large Hollies and Yews, between twenty and thirty years of age—some of them not with very good roots—not one has been lost, nor have they ever shed their leaves to any great extent. All made growth, and some Hollies moved near the end of May made young shoots 6 in. long the same season. The same kinds of evergreen trees and bushes, transplanted just before and after midsummer when in full growth, have all succeeded; but Laurels, Rhododendrons, and Hollies lost their young shoots, which, being soft, withered and turned black. Notwithstanding possible injury from heat and drought, we would much rather risk transplanting at midsummer than at midwinter. Heat and drought are easier withstood than frost or prolonged cold. But, as we have said before, much depends upon the kind of subject dealt with. Trees or shrubs that produce abundance of roots in a compact form may be transplanted almost at any season, as good balls can always be got with them. The Box tree, for example, has such a multitude of roots, and all held together in such a mass, that it is hardly ever affected by removal, no matter what season of the year it may be. It is the same with the Rhododendron, and also with the Aucuba, and a good many other close-habited subjects, the roots of which mostly correspond to the habit of the branches. C.

AUTUMN-TINTED TREES AND SHRUBS.

A VISIT just now to the extensive nurseries of Mr. Anthony Waterer, Knap Hill, Woking, is well repaid, if only to see the resplendent coloration of the various deciduous kinds of trees and shrubs there in their autumnal livery. The gorgeous hues of the decaying foliage of the Western Azalea (*A. occidentalis*) are very striking. This Azalea is comparatively little known in this country, but it is plentiful in, and a great ornament to, the wooded districts of California. The leaves are oblong or lance-shaped, and have a tendency to be clustered at the upper parts of the branches. They vary in colour from a pale red to the richest deep crimson, and they are sometimes laced with a golden tint, altogether rendering them most attractive, more particularly when seen in masses. The leaves, before they change colour, are a bright shining green, and form a fine setting for the large fragrant white and sometimes rosy blossoms, each of which have golden bands. Another strikingly beautiful variety is Graf Von Moran, a kind in the way of *A. narcissiflora*. This was much admired last spring at South Kensington, where it was deservedly awarded a first-class certificate. Its leaves are considerably broader than those of the foregoing, but scarcely less brilliant; and large bushes of it have a striking effect when seen in company with the ordinary forms of the Ghent Azaleas, which, unfortunately, do not take on such a rich autumn garb. Other Ericaceous plants, such as *Vacciniums*, &c., have beautifully-tinted decaying foliage. Amongst these the Pennsylvanian Whortleberry (*V. pennsylvanicum*) is especially noteworthy. It is a much-branched under shrub, growing about 3 ft., high, with leaves of the deepest crimson. Like its congeners it is a peat-loving plant, but thrives well under ordinary conditions.

Turning to the larger-growing subjects which have attractive autumn foliage, there are few more beautiful than the yellow Virgilia (*V. lutea*), a North American tree, which grows here to a great size. The many trees about the nursery are conspicuous from every part by the bright golden hues of the foliage. It is, besides this, a most desirable tree for general planting, and certainly deserves to be better known than it is. Many of the Maples are very prominent in this way, especially *Acer ginnala*, with its splendid glowing ruby tints. *A. dasycarpum*, or as some call it, *A. eriocarpum*, is very attractive too; its leaves assume a rich golden hue, which, with the handsomely cut and silvery under-surfaces of the leaves, renders this tree a fine object. It is considered to be desirable, if not preferable, to the Western or true London Plane for town planting, and has been successfully tried in some of the American cities. The beauty of the foliage of the various kinds of *Rhus*, especially in autumn, when it assumes the richest colours, renders them worthy of a place in every garden. Here several of the species form a very conspicuous feature, as do also the splendid examples of the Weeping Beech, the largest of which is a noble specimen, and probably the finest in

cultivation. The numbers of smaller examples about the nursery also add to the display, together with the purple varieties of Beech and Birch. Than the Japanese Maples—varieties of *Acer polymorphum*, &c.—it would be difficult to name a class of more elegant shrubs, and it is much to be regretted that they cannot be termed hardy generally. The plants at Knap Hill in the open air are wearing splendid tints, from copery-red to golden-yellow, the effect of which is enhanced in many of the varieties by the delicate feathery foliage. Near to these is what may be considered one of the sights of Knap Hill just now; it is a species of Vine, with leaves well-nigh 1 ft. square and tinged with golden and crimson hues, towering amongst the sombre green foliage of lofty Conifers, the appearance of which thus clad may be better imagined than described. This kind of effect is apparently cultivated by Mr. Waterer, for a similar instance occurs close by in the form of the well-known *Wistaria sinensis*, not trained to a wall or trellis, as is usually seen, but twining itself from the trunks to the very tops of some trees of *Pinus ponderosa*, *Abies Douglasi*, &c., 50 ft. to 70 ft. high or more. In this position it is never injured by frost. These remarks apply only to the more prominent features of the nursery at the present time, and are, of course, by no means exhaustive even on the subject of autumn-tinted trees; these, in conjunction with the vast collections of hardy trees and shrubs, and more particularly the *Rhododendrons* and the unique collections of *Yews*, *Hollies*, &c., which are spread over a great extent, constitute an autumnal picture which could rarely be met with elsewhere. To those who are contemplating planting the present season is one of the best to visit a tree and shrub nursery like this, for not only is there the advantage of seeing the effect of certain subjects in autumn, but also the condition in which they are previous to transplanting. W. G.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Dwarf Furze (*Ulex nanus*).—When passing recently over a track of wild unreclaimed land I was much impressed by the beauty of this dwarf species of Furze. It is a rather local kind, though growing abundantly where it occurs. Its foliage is much finer than that of the common Furze, and the plant altogether is of much smaller proportions, rarely exceeding 18 in. in height, and in many instances forming compact little tufts not 1 ft. in height, and studded with bloom. During the dull months of the year it presents a very cheerful appearance. It might be usefully employed in the wild garden, or in the half-dressed portions of the pleasure grounds. It would also be an excellent subject for covering sloping banks, or for planting in poor, stony, or sandy soil, where the generality of flowering plants would refuse to thrive. In a mild season it will continue gay throughout the winter, but in a general way it is most effective during the late autumn, early winter, and early spring months.—J. C. B.

Escallonia macrantha.—On the platform at Battle Station there is a magnificent specimen of this *Escallonia*. It is 20 ft. in circumference and 7 ft. high, and is loaded with coral-coloured bunches of flowers. The beautiful dark green, fresh looking foliage of this plant should recommend it to all who are near the sea coast. It is equally well adapted for covering walls, rocks, &c., and for hedges and single specimens.—T. S. W.

Lycesteria formosa.—I agree with Mr. Cornhill (p. 362) that this old-fashioned shrub is well worth more prominence than has hitherto been accorded it. With us some single bushes of it on Grass, sheltered by Conifers, withstood the last severe winter without any protection, but it deserves a little extra care, as it is highly ornamental for a long period. Doubtless the desire for brilliant colours helped to thrust it into the background, but now when that is subsiding we may reasonably hope that plants of this kind will again be sought after and receive the attention which they deserve.—J. GROOM, *London*.

An Irish M. P. on Planting.—At a meeting held in the early part of this week in the county Leitrim, speaking of the reclamation and improvement of waste lands, Mr. P. J. Smyth, M. P. for Westmeath, said that there were in Ireland some 4,000,000 acres of waste land, not one acre of which could be said to be absolutely irreclaimable. It is, he said, admitted that fully one-half of the 4,000,000 acres are profitably reclaimable in the sense of the capitalist or the speculator, but every acre of it is profitably reclaimable in the sense of the enduring prosperity of the country. The bleakest mountain side, the worn-out bog, will produce timber, and an abundance of timber in Ireland would give it a new climate, new industries, and a higher civilisation. The surest way to barbarise a country was to denude it of timber. They found invariably

that in well-wooded countries the inventive faculties of the people were stimulated, various industries were followed, the arts grew, and civilisation made a home.

THE LIBRARY.

NOTES ON LILIES*.

THE Lily, like the Rose, is pre-eminently an English garden flower, and one which has been the cherished inmate of old abbey and manse gardens for many centuries. Side by side these two flowers have struggled on through the changing tides of many fashions, supplying lovely imagery to English writers on theology and other subjects, as well as to skilled workers in wood and stone. Chaucer and Herrick, Shakespeare and Milton, alike fixed various phases of Lily beauty in our language just as the fair workers in tapestry, and the religious forefathers of Gibbons and Chantry fore-shadowed its loveliness in textile fabrics and in tree or rock. There is a subtle charm about the older, or rather longest known of Lilies, which it is difficult for one of unpoetic feeling to express aright, and we scarcely can believe in all its suggestive fulness that the White Lily of to-day is the White Lily of Chaucer's "Canterbury Tales," and the one on which people of many tongues have gazed. Being a native of southern Europe, it has been assumed that bulbs of it were brought to our gardens by the early Crusaders, and it is as a part of armorial bearings that Chaucer notices it in his lines—

"Upon his crest he bare a tour
And therein stiked a Lily flour."

That the Romans of old, who were the best gardeners of their time, admired Lilies we may gather from Columella, who tells us that, planted in baskets of earth, their flowers and verdure are long preserved. Pliny's notice of it as being second only to the Rose is a matter of history, and the Greeks of to-day place wreaths of Lilies and corn on the heads of their brides. Queen Elizabeth must often have gazed on the "filled up glory" of the White Lily since Gerard says of it "our White Lillie groweth in most gardens," and old Parkinson also wrote of and figured it as early as 1629. This Lily seems to have been an everybody's flower in those days, since he thus speaks of it: "The ordinary White Lily scarce needeth any description, it is so well known and so frequent in every garden," adding that it "groweth onely in gardens and it hath not been declared where it is found wilde by any that I can hear of." Again he observes that the flowers of it are many or few "according to the age of the plant, fertility of the soil, and time of standing where it groweth," nor does he forget to tell us that "it flowers in June or thereabouts, but shoots forth green leaves in autumn, which abide green all the winter, the stalk springing up between the lower leaves in the spring." Of *L. bulbiferum*, Parkinson tells us that "this Lily will shoot strings under ground like as the gold red Lily will also do, whereat will grow white-bulbed roots like the roots of the mother plant, thereby quickly encreasing itself"; and of the "greater bulbed red Lily" he says that "this is more plentiful in bulbs and in shooting strings to encrease roots under ground than the others." Of *L. canadense* the same careful old author states that it was brought into France from Canada by a French Colonie, and from thence unto us; "while of the whorl-leaved *Martagons* he says that "all these Lilies have been found in the divers countries of Germany, as Austria, Hungaria, Pannonia, Stiria, &c., and are made denizens of our London gardens, where they flourish as in their own natural places."

Until about some ten or perhaps some fifteen years ago Lilies were quite common flowers in cottage gardens nearly everywhere. I well remember a little pastoral hamlet in the Midlands, where two irregular rows of thatched or red-tiled cottages stretched on either side of the long street. The walls were white-washed, and each cottage had a patch of flower garden in front, and long, narrow, wall-girt strips of vegetable ground stretched towards the meadows and Fir plantations behind. In the little front gardens Lilies were rampant, and I have never seen such perfect sheaves of tall flower-stems anywhere since that time. The kinds were the common white, the scarlet Turk's-cap or Turban, the Orange Lily, and the Martagon, both purple and white. Other flowers in plenty were the *Narcissus*, *Crocus*, *Snowdrop*, and *Crown Imperial* in enormous patches, followed by *Pinks*, *Carnations*, and *Sweet Williams*; but the glory of the village gardens was at its height in June when the snowy Lilies were in bloom. Year after year up came the leafy wands, seemingly stronger, taller, and more beautiful than before, and the only care they ever received was an annual top-dressing of manure during the winter. This much care was due to the advice

* "Notes on Lilies," 2nd Edition, by Dr. Wallace, Colchester, 1879. New Plan and Bulb Company.

of an octogenarian, John Dale, the knee-breeched old gardener at the hall, who used to gather around him an admiring audience of cottage gardeners one or two nights a week in the snug back parlour of the "Rose and Crown." He always found the best armchair by the old-fashioned chimney nook awaiting him, and his weather lore and knowledge of "the crops," as imparted "staccato" between whiffs at a churchwarden or yard-long pipe, were always listened to with respect. I have heard him discoursing on Lilies myself, and this, as far as I can remember (for it is now over twenty years ago) was his style:—"Lilies is Lilies you see," said old Dale, "and if you don't mind them in winter and spring they'll be frost-bit! They be like 'taters be they roots, you takes up your taters an' leaves down your Lilies; and so if you don't keep their toes warm they'll rot!" Therefore the Lilies were duly protected by a covering of manure in the winter; they were never disturbed, as Nature's Lilies are never transplanted, and they didn't "rot," but they thrived apace rather, and made a common-place village beautiful to see for at least three months out of the twelve. "Some folks uses ashes, but muck is best" said Dale, "'cos it feeds 'em as well as keeps 'em warm you see, just like a top-coat." The Lilies in question were the *feu de joie*, but Roses and many other hardy flowers kept up a running fire all the year round. How long these Lilies had been thus generally grown no one seemed able to say. The forefathers of some residents in the place had held tenure for three centuries at least, and the Lilies may also have existed nearly equally long, since all those hitherto named (and even *L. canadense*) were well known over two centuries ago. When, however, the rage for "bedding plants" had fairly set in, the Lilies lost their places first in large gardens, and then the new fashion—geometry in blue, red, and yellow lines, spread even to the old cottage gardens in front of the neat white walled cottages in some of the most sequestered country hamlets. Men of old Dale's stamp, with a genuine love for Lilies and all hardy flowers, died out; and younger men favoured the craze of their time until our "flower gardens" looked like a collection of the "flags of all nations," and we were reminded of the confectioner's decorations on a wedding cake, or, as Bacon puts it, we had seen such things "on tarts." Thousands of Lily bulbs were swept away by the new fashion, and yet there were some kinds strong enough in constitution to hold their own even in starved shrubberies, to which they had been removed to make room for the "ribbon border;" and in some few places—as Bitton, for example—they were welcomed, sheltered, and wellfed, exiles though they were. There were some cottagers in secluded districts who also spared them, but it has been left for us to grow and enjoy Lilies in a fulness perhaps unenjoyed by any one people of bygone days. The dark ages of English flower gardening are past, and every lovely flower has now its meed of praise, its share of somebody's admiration and care. The queenly Lily is one of the first of favourites; in the gentle tournaments of to-day she has her place in every garden, and even "Our Lady" places her name on the title page of the magnificent folio volume of plates so recently devoted to the portraiture of the Lily Queen by Mr. Elwes.

What we have said of Lilies is also true of Narcissi and other bulbous plants, and we owe our best thanks to Dr. Wallace for having in the book now before us brought together to a focus as it were not only his own bright light on the subject, but the light of the most successful of nearly all other Lily growers as well; not only is the nomenclature and classification of Lilies made easy for us by Mr. Baker's synopsis as herein reproduced, but there are valuable letters from many who have seen the Lilies of Europe, California, Japan, and the Himalayas growing wild. The native conditions under which Lilies are found are clearly set forth, as is also the experience of the most successful of Lily growers in England, Ireland, and Scotland. Special examples of culture are quoted, and the letters of foreign botanists and collectors are supplemented by notes on hybridisation, propagation, and the details of Lily culture in pots as well as in the open air. Dr. Wallace has himself imported many thousands of Lily bulbs from all habitats; hence we need not be surprised to find that he has given all due prominence to the underground or bulb growth of Lilies, as set forth for the first time by engravings and descriptions in our columns some years ago. Scarcely a point of interest likely to occur to the humblest of Lily cultivators has escaped notice; thus, in the notes on propagation, we find that Lilies are increased by seeds, cuttings, layers, offsets, or bulb-bearing stolons, and by planting the scales of the bulb either attached to a bit of its axis or not, as the case may be. We are told that—as in the case of Irises and Narcissi—the Lily may be grown in the open air up to its flowering stage, and then transferred to a pot for portability or indoor decoration. That there are little oversights and misprints, no one, perhaps, is better aware than the author himself; and we ourselves venture to supplement the information about cut flowers by pointing out that Lily flowers, if wanted for indoor deco-

orative purposes at a distance, are best cut just when their flower-buds are bursting, or even a few hours before, rather than after expansion. Thus cut, each bud, wrapped in silver paper, travels safely and in a smaller space than in any other way. When Nature unpacks her Lily buds it is impossible to pack them half as well again. On arriving at their destination, if the buds be taken out and placed in warm water (120° Fahr.) and in a warm room, each flower will quickly expand in all its pristine freshness; there will be no bent or bruised petals, and no smearing of pollen on the flowers. This is equally true of Water Lilies, Gloxinias, Irises, Gladioli, and Narcissi, and a knowledge of these facts is worth many pounds per annum to gardeners and florists who have to pack loose and tender-petalled flowers for travelling long distances.

The care necessary to grow Lilies well in pots is clearly pointed out, and what not to do is tersely expressed. Thus we are told that bulbs and plants are liable to be dried up and starved from want of nutriment in pots both summer and winter; and the extreme danger of "drying off," or neglecting to water pot Lilies during the winter months is also alluded to. The fact that outdoor Lilies get much more water during winter than without leaves, than in summer when growing freely, is not so forcibly expressed as we could wish, however, and the statement which is quoted on p. 13 "that the bulbs [in pots] undergo a resting period, and comparative dryness in winter" must be looked upon as in some degree misleading in itself as it stands. We have long entertained, and have elsewhere expressed, the idea that bulb growth may be much strengthened by sacrificing the flowers for a season, and this point is also alluded to and its advantages pointed out in one or two places. By breaking off the top of the flower stem just before the flower buds form, we throw all the vigour of the leaves, much of which would ordinarily have gone to build up the flower tissues, into the bulbs to their manifest advantage. This is a point proved beyond all doubt. In the case of pot Lilies, more especially, the application of manure water or manurial top-dressings seems essential just as the secondary or stem-roots appear in whorls on the stems above the surface of the soil. By feeding these secondary roots thus, any extra drain upon the old bulbs is prevented, and they are enabled to build up that new bulb growth or "change of centre" so essential for the security of the next year's bloom. We have been told that "no bulb blooms twice"; the fact is, however, that no bulb blooms from the same centre of growth twice, but the same bulb may for years go on increasing its axis and changing its centre or growing point from which other flower-stems may arise. In the North American Lilies of the *L. pardalinum* group, this fact is most clearly evident, but all Lilies are alike in plan, the difference being in degree.

In the instance of the common white Lily, Mr. Frank Miles' plan of circumventing slugs (see p. 45-46), by separating and replanting too crowded clumps in lime-dressed soil, is a very good one, and his advice on repotting Lily bulbs in autumn is too valuable to be here passed by. "People make a great mistake in repotting their Lilies in spring when the soil is full of new roots, instead of in the autumn when there is nothing but old roots in the pots." Mr. Miles also, on p. 47, alludes to the fact of bulb growth being improved by breaking off the flower-buds when just formed. It is clearly pointed out (see pp. 53-54) that Lily bulbs are not resting during the winter, but actually forming roots or underground growth. Here then we see why Lilies must never be "dried off" in winter, either artificially or by allowing moisture-licking frosts to suck the ground dry above or around them. Thus it is apparent that Lily growth is of two kinds, each kind dependent on the other—firstly, above ground, leafy stems or flowering growth during summer; and, secondly, subterranean bulb growth during winter; and it is the latter kind of growth that is in most danger of being ill-treated, unwittingly it may be, since being buried, it is, as a rule, unobserved. If bulbs are planted in Rhododendron beds or shrubbery borders, one must of necessity see that the earth is well enriched, shrubbery borders being, as a rule, sucked dry by the hungry roots of the bushes and trees therein arranged. If planted in open beds or borders, then carpet the soil with surface-rooting Veronicas, Sedums, Saxifrages, or even Mignonette, and other annuals rather than allow a barren evaporating surface to exist. If the soil is too heavy or close, use turf ashes or a load or two of gravel or sandstone broken into small nodules. To use fine white sand is worse than useless in such cases, and too expensive withal. In hot, dry soils stones as big as one's fist, or even larger, are valuable for condensing and retaining moisture, which otherwise would evaporate from the surface. In the case of the noble *L. giganteum*, a deep border of peat earth, loam, and nodules of sandstone suits it exactly; in ordinary, well-drained Rhododendron beds it succeeds also to perfection, but of all conditions I find that shelter is indispensable, and in a shady spot this Lily seems most at home. There is much valuable information respecting all the Lilies in the book before us, to which we must refer the reader. In conclusion we heartily congratulate

Dr. Wallace on having reproduced a handy work on Lilies, which is much wanted. B.

SOCIETIES AND EXHIBITIONS.

POMOLOGISTS IN COUNCIL.

By W. H. COLEMAN.

THE seventeenth biennial session of the American Pomological Society was held at Rochester, N.Y., Sept. 17th to 19th. Pomologists from Missouri to Nova Scotia were present. Dr. John A. Warder, of Ohio, presided. The venerable Marshall P. Wilder, President of the Society during thirty-two of the thirty-four years of its existence, was unable to be present by reason of advanced age (he is eighty-four) and suffering from the effects of an accident, and sent his resignation, embodied in an address which, for its pathos and beauty, thorough review of the past work of the Society, and wise counsel for the future, was a remarkable paper to come from one so enfeebled. He was, however, unanimously re-elected, the Society deeming his name worth more than the living presence of any other man. Financially, the Society is in good form. The income has been about 1,200 dollars, the expenditure 900 dollars. The chief expense is for the issue of a full report of the fruit discussions and the work of the State committee in revising the lists of fruits adapted to the various parts of the country.

The exhibition was held on the fair-ground, two miles from the City, in connection with the Western New York Fair. A large tent was well filled with collections of fruit from Massachusetts, New York, Ohio, Michigan, Iowa, Missouri, and Nova Scotia. The latter two were near each other, and proved an interesting comparative study. Varieties that were green and hard in the northern collection were over-ripe in the western, and there was said to be a difference of two months between them. There were in all 1,835 plates of fruits.

The chief interest centred about the new Grapes, especially the white ones, of which never before has there been such a varied and excellent show. The largest display was made of the Niagara and the Prentiss. The former originated with Mr. Hoag, of Lockport; is a Concord seedling, the Vine a very strong grower and abundant bearer, the Grape large in bunch and berry, cluster long and rather loose, flesh juicy and nearly tender, quality good. It promises to be harder than most white Grapes, and, like its parent, to be adapted to general cultivation. The Prentiss originated with Mr. Prentiss, of Crooked Lake, and has been fruited for ten years. Mr. Prentiss has an acre of it in bearing. In growth and habit the Vine is like that of Roger's hybrids. The fruit is smaller than that of the Niagara, bunch more compact, quality better, resembles Rebecca in taste, and if hardy everywhere, will prove a fine substitute for that excellent Grape. The Duchess originated with Mr. Caywood, and was shown by him, and also by Messrs. Farley and Anderson, Union Springs, N.Y. It is a seedling of the Montgomery, bunch and berry of good size, between the Prentiss and the Niagara, quality excellent, though the specimens were not quite ripe. Mr. Ricketts, of Newburg, N.Y., had several of his newer seedlings; amongst them were Lady Washington, a white Grape, the largest in size of bunch on exhibition and of fine quality; the Naomi, also white, fine in appearance and of a delicate rose flavour; and Bacchus, a small-berried black Grape, said to be a good wine Grape. Mr. Barrow exhibited the Jefferson (a Ricketts seedling), a rose-coloured Grape of Iowa flavour. The Pocklington, a white Grape, has been shown several years; it is a Concord seedling of very large size, sweet, but coarse in quality. Fine samples of the Brighton were shown. This is now the popular red Grape. It is not quite equal to Catawba in flavour, but it is so good and ripens so surely by the 1st of September that the latter can be easily spared where the lateness of the season prevents its ripening. The Lady, now before the public for several years, a Concord seedling, is very early, of good size, sweet, but musky in flavour. The Vine is a slow grower at first, but does better as it gets older. Moore's Early is a very large, showy, black Grape, of ordinary quality, valuable in Massachusetts, where the choicer Grapes do not ripen well. Mr. Isador Bush, of Missouri, showed the Elvira and Noah, white Grapes of the Riparian class, which make excellent wine in Missouri. (In Geneva, N.Y., the Elvira proves a very strong grower and prolific bearer—a three-year transplanted Vine setting thirty bunches the first season and one hundred the next. It ripens rather late, however, and is only fair in quality. The bunches are small). Mr. Roe, of Cornwall, N.Y., showed a basket of fruit from a Concord sport. A certain branch of a Concord Vine bore larger, juicier fruit than the rest. This wood was taken and propagated, and the new Vines bear fruit like that of the original cane. The bunch in shape is like the Rogers, berries very large, very juicy, and of distinctively Concord character, adhere well to the stem, and do not crack. It seems to be an improved Worden, which

has been called an improved Concord. Some unnamed hybrid seedlings from Dr. Culbert, of Newburg, N.Y., were of delicious quality.

Mr. Ricketts exhibited a new Peach, the Mrs. Brett, which was remarkable for size and colour. It is white-fleshed and delicious in flavour. Messrs. Ellwanger & Barry had some Souvenir du Congrès Pears of such enormous size and enticingness that for safety they were kept in a wire cage. Some Fillbasket and Stump Apples were remarkable for their size and colour. A little 2-in. fruit, shaped like a Bartlett Pear, was labelled, "This is an Apple."

Among the regular addresses the most noticeable were those by Mr. Thomas Meehan and Prof. W. J. Beals. Mr. Meehan spoke on the apparent waste of blossom and pollen (as in the Chestnut tree, which produces thousands more than are needed to perfect the actual fruit), believing it to be a provision for insect life, and teaching the lesson that even Nature is unselfish, and her subjects work for others as well as themselves. He also explained the use of sex in vegetation to be the reproduction, not of individuals, but of varieties. Prof. Beals gave an account of the studies of Apple blossoms and his proposed method of recognising the different varieties of Apples by the difference in the petals and other parts. This was illustrated by large drawings, and excited much interest.

The discussions comprised new Grapes, Peaches, Raspberries, and Strawberries. In the talk on Grapes, Moore's Early was praised by the Massachusetts men as two weeks earlier than the Concord, but elsewhere it was not in favour; the Cottage is inferior in flavour and drops from the stem; the Worden was two weeks earlier than Concord with Mr. Willard of Geneva, one week with Mr. Campbell of Ohio, no difference with Mr. Craine of Lockport; the Niagara is earlier than Concord and good in foliage with Mr. Moody of Lockport, remarkable for size of cluster with Mr. Craine, and Mr. Younglove, of Vine Valley, had seen clusters on the Vine one month after ripening; the Brighton blights and does not grow with Mr. Saul of Washington, is excellent and healthy with Mr. Hubbard of Fredonia, succeeds as well as Rogers with Mr. Strong of Massachusetts; the Prentiss, with Mr. Hubbard, is a good grower, ripens with Concord, quality excellent, never cracks, good keeper; Mr. Younglove had seen the Vineyard, habit of growth was like Eumelah; Lady Washington was healthy in foliage with Mr. Campbell, but had not fruited yet. Mr. J. W. Manning had seen it at Mr. Ricketts's, fine, strong Vine and clusters; Early Dawn mildews at Newburg; the Lady does well with Mr. Saul, and is two weeks earlier than Concord, is best white Grape with Mr. Auger of Connecticut, is earliest with Mr. Strong of Massachusetts, is early, good, and healthy with Mr. Hubbard, but not a strong grower. Dr. Beadle, of Ontario, said the Champion was being sold in Canada under the name of Beaconsfield. Dr. Hamilton, of Nova Scotia, said they could grow good fruit there, as the exhibition showed, and he had even succeeded in ripening the Black Hamburg out-of-doors.

In the talk on Peaches, Alexander and Amsden were pronounced to be identical; Mr. Purdy, of Palmyra, N.Y., called the Waterloo the finest of early Peaches; Mr. Hope, of Georgia, found the Wilder a week later than the Downing; Mr. Saul praised the Bower's Early and Levy's Late; Mr. Newlin, of Arkansas, mentioned the Gov. Garland; Mr. Husmann commended the October Beauty, a Missouri seedling, as a fine late Peach; Mr. Van Dusen, of Geneva, spoke of the Dunlap as a favourite in Seneca County, and coming true from the stone. In the talk on Strawberries, Mr. Barry praised the Sharpless for size, quality, and bearing; Mr. Roe found Crystal City the earliest, Golden Defiance the latest, and Charles Downing one of the best; Triple Crown is a fine late, Newman's Prolific does well at the south, Miner's Prolific is one of the most promising, Duchesse best early, Duncan soft at home but firm at the south, Crescent Seedling immense bearer, but of common quality; Mr. Wm. Barry said Cinderella bore a large crop of perfumed fruit, Continental was a profuse bearer, but of poor quality; Mr. Purdy found Pioneer early and beautiful, Windsor Chief most productive, Cumberland Triumph very handsome, Endicott fails here but succeeds at Chicago; Sterling of no value, Newman poor in every way, Marion leathery but a good shipper; Mr. Husmann, of Missouri, liked Captain Jack for market and Cumberland Triumph for home use, Charles Downing and Kentucky both good; Mr. Bush liked Crystal City; Mr. Lynn, of Michigan, praised the new seedling Marion.

The society was entertained in the evening of the 18th in Power's Art Rooms. A supper was served, with appropriate toasts and speeches. The tables were adorned with a display of fruits and flowers such as even Rochester had never seen before, and pronounced unequalled by those who had attended previous banquets of the kind.

The ground in front of the Great Northern Railway terminus, King's Cross, is about to be laid out as a garden.

CALIFORNIAN NOTES.

Liliorhiza lanceolata is among the earliest of our spring blooming bulbs, with a habit and appearance slightly similar to the spring Snowdrop, which is so much prized in the eastern states. Its flower stem, which has but few leaves, is from 6 in. to 15 in. high; the scattered leaves run into bracts near the summit, from whose axils spring the flowers, which at first appear to project outward, but gradually droop with age. I have rarely seen eight flowers in the raceme, the last blooming as the first fades. The six leaves of the perianth, which are white with green veins, at first form a cup about as deep as wide, sometimes $1\frac{1}{2}$ in. each way, but as the flower ages the tips turn back and form a bell-shaped blossom with a reflexed margin. The odour is rather unpleasant to some. The blooming bulbs often grow at a depth of 1 ft. or more in stiff adobe, and as the bulbs are composed of several loosely coherent scales, it is often very difficult to obtain them entire. The bulbs are a clear waxy white, and sometimes attain a diameter of 1 in. and $1\frac{1}{2}$ in.

The *White Camassia* is nearly related to the blue *Camassia esculenta*; it grows often on open sandy ridge tops, but is also found in dry spots in shady ravines; its bulbs are generally deep in the ground, the base in some stiff moisture-retaining soil, so that the base of the bulb is often injured in digging. They are often 5 in. long by 2 in. in diameter. In lighter soils the spike of bloom is large, often containing upwards of 100 florets, and being 9 in. long by 4 in. in diameter; while in heavier soils the spike is sometimes compounded, and contains several hundred florets, which are white, and about $\frac{1}{2}$ in. in diameter. The spike often reaches 3 ft. or 4 ft. in height. The cluster of leaves from the bulb often reaches 18 in. in height, each leaf being about 1 in. across.

Lilies and Pansies.—In small gardens the all-important question is how to save space and obtain the greatest enjoyment from every inch of the surface. While enjoying our beds of Japan Lilies this summer, it has occurred to us that since some of them, particularly the auratum, do not like over much sun, and all of them hate too frequent removals, it might be possible to scatter them among surface-rooted flowers, so as to save space, and ensure an attraction for more months of the year. For this purpose we think that it would only be necessary to plant Japan Lilies rather deeply in well prepared somewhat shaded beds, and then place a sufficient number of small Pansy plants on the surface to give the bed a reasonable excuse for existence.

Abronia Without Water.—The common Beach *Abronia umbellata* cannot be praised too highly as an autumn bloomer without any water whatever. A circular bed is one of the brightest things in a garden, and once fairly rooted, it ought to be permanent. Long branches are useful for decoration, if used with plenty of white.

Catalonian Jasmine.—This, through the summer and autumn, is the best fragrant, white-flowered climber we know of. Ours has made a large growth this year, and is a mass of white sprays and clusters. It does not seem to thrive in a pot, but as soon as planted in the open air it flourishes exceedingly, and is the admired of all beholders. This Jasmine is not the sort of plant to make a great shelter within a brief time. It is fragrant and delicate, has a cultivated, gracious air, and is altogether charming.

Californian Bananas.—Much has been said this summer of the dwarf Cavendish Banana, and immense clusters of the fruits were on exhibition at the recent State Fair, and at several District Fairs this season. In some cases the fruit was ripe, but it was not of a clear rich colour, or of high flavour. This has discouraged some growers who had hoped to be able to produce an article fit for market, and of sufficiently good quality to drive imported fruits out of the market. But we do not consider that the Banana has yet had a fair showing on account of the severe and unusual cold of last winter.

Water as a Protection Against Frost.—Now we have always been taught that irrigation of the trees in autumn and winter is very injurious, and should never be resorted to. Alas! for the theorists; those of my neighbours who followed their advice last winter lost heaviest. Myself and a friend of mine, Mr. MacNiel, had better luck, and I will now shortly tell you how it was. Last summer I had planted a large circle in front of the wine cellar with rather tender trees, such as *Araucarias*, &c., which generally are supposed to be unable to withstand our winter climate. Not knowing any better, of course, I kept the water away from the trees from the 1st of October, and the ground got well dried up. As you know, we had very severe frosts about Christmas time, and the trees had been left uncovered. The day before the heavy frost there was a large break in our irrigation ditch near by. The water flowed down, and, to my great dismay, covered a part of a circle where I

had my tender trees. Of course I thought they were all gone. The water standing round the trees froze solid, and just as far as the water had reached the trees were saved. The irrigated ground kept moist the whole winter, and after every frost presented the appearance of a heavily frozen surface. One day in the early spring I visited Mr. MacNiel and incidentally told him of my experience. "Why," he said, "that is just mine too, come along and you will judge for yourself." And so we went out through the Peach and Almond orchard, one mile and a half or so, down to the Orange trees. Last fall Mr. MacNiel had 800 Orange and Lime trees alive, all budded, and about five years old. Now there were only 250 left alive. "Well," said my friend, "a day or so before the heavy frost, the boys on Chapman's forty acres took a notion to irrigate their sheep-pasture, and did not care a bit for the big break in their ditch. Accordingly I found, to my great vexation, half of my Orange trees flooded next morning. The water had run here and there in the lowest places, of course, and, look here, you may see it plainly, wherever the water did go, there the trees are alive. The dry places were occupied by trees which you now see dead to the roots." And indeed my friend was right, the water had saved our trees, no mistake about that.—*Californian Horticulturist*.

ANSWERS TO CORRESPONDENTS.

Double White Rocket.—If "An Old Gardener" (p. 367) will write to Wm. Wardle, of Winskill, near Burton-on-Trent, I have no doubt that he will inform him where he can procure the old dwarf double white Rocket. I have but one solitary plant, and consider it, when well grown, second to none of the other three varieties. The two giant double Rockets, when strong, are somewhat coarse, which the dwarf double white certainly is not. Mr. Wardle's plants came from Ireland.—WM. ELLIOTT, *Stocksbridge*.

Rose Hedges.—Can any one tell me from his own experience of a good Rose for forming a Rose hedge to enclose one side of a Rosery.—T. E. C. (Hybrid Chinas: Charles Lawson (rose), Coupe d'Hebe (pink), Madame Plantier (white); Hybrid Perpetuals: Anna Alexieff (rose), Magna Charta (pink), Maréchal Vaillant (red). Any one of these would make a good hedge of Roses.—W. P.)

Worn-out Lawns.—How can I improve a lawn which seems to be almost worn out?—P. [In March next scarify the bare patches with a sharp-toothed iron rake. Apply a rich top-dressing of fine soil, and sow Grass seeds thickly, raking them well in, and rolling the surface smooth and even. If the Grass needs more encouragement apply soot, or any artificial manure that contains a good deal of ammonia. There has been so much mowing this season that the Grass needs extra support. H.]

Propagating Clematises.—J. B. Clematises are propagated by grafting them on the roots of common kinds, or by layers, or by division of the roots. To obtain young plants by layers the wood as it grows should be pegged down at each joint, a small cut being made close to the bud with a sharp knife to induce roots to be thrown out. Some fine sand should be mixed with the soil in order to induce free rooting. Stop the growth of the main shoot after several joints have been so layered, and when rooted the wood can be severed and the young plants lifted. Old roots may also be lifted in the winter, and be carefully divided.—D.

Champion Potatoes.—Do these do well in what are called lazy drills, or is it better to plant them in ground that has been broken up? I am thinking of planting some when the time comes; the ground I am going to put them in is now Grass. If they do not do well in the lazy drills, I will have to rake the ground up.—SUBSCRIBER.

Wintering Echeverias.—Alpha.—*E. secunda* and *secunda glauca* may be wintered freely in the open air if banks of soil be built up against a wall or greenhouse or other building, with a very steep slope. Into these banks the Echeverias should be planted thickly, and no harm will result to them until very severe frost comes, when some mats, sacks, or other coverings placed over them will keep them safe. The sloping position throws off wet, and thus frost does less harm.

Neglected Asparagus Beds.—I have just taken possession of an old garden in which the Asparagus beds have been much neglected. How can I improve them?—W. [When the tops are ripe (which may be known by change of colour), dress the beds with salt, 7 lb. to the square yard, and place all over the surface of the bed 5 in. or 6 in. in thickness of good manure. The juices of the manure will mingle with the salt, and be carried down to the roots by the rains and be of much benefit. But a new plantation must be made; therefore, in spring, procure a few one-year old plants, and plant them in rows 4 ft. apart and 2 ft. asunder in the rows.—E. H.]

Peaches.—P. S.—Either Lord Palmerston or Walburton Admirable will answer your purpose. Both are good late Peaches.

Names of Plants.—F. G.—The leaves sent belong to a species of *Rhododendron* from the Himalayas, but we cannot name it without flowers. R. S. M.—*Stapelia variegata*. M. W.—If you will send flowers we will endeavour to name it for you. M. L. D.—2, *Begonia Weltoniensis*; 3, *B. semperflorens*; 5, *B. fuchsoides*; 6, *Chrysanthemum maximum*; 1 and 4, Next week. W. B. A.—5, *Rudbeckia hirta*; 6, *Chrysanthemum frutescens*; 7, *Helleborus foetidus*; 8, *Centranthus ruber*; 9, *Sedum spectabile*. Others next week. F. T.—1, *Eunymus europaeus*; 2, *Hypericum Androsenum*. M. O'R.—The name of the Nilotic Lotus is *Nymphaea Lotus*. P. J. N.—The large flower is *Aster Amellus*, the other we cannot name from such a scrap. We cannot answer your other question. Fruits, J. T.—Next week. R. S.—1, *Asplenium Trichomanes*; 2, *A. Ruta-muraria*; 3, *Adiantum pedatum*; 4, *Polypodium vulgare*; 5, *Doodia dives*. Devon.—1, *Aster Chapmanii*; 2, *A. Amellus*; 3, *A. bessarabicus*; 4, *A. ericoides*; 5, *A. levis*; 6, *Diplopappus linearifolius*. Enquirer.—*Centropogon Lucyanus*. M. T.—1, *Odontoglossum crispum*; 2, *O. maculatum*; 3, *Cypripedium barbatum*, C. insigne. Amateur.—*Erica cerinthoides*. W. S.—1, *Habrothamnus corymbosus*; 2, *H. fasciculatus*; 3, *Cestrum aurantiacum*. O. P. Q.—1, *Colchicum autumnale*; 2, *Apparently C. byzantinum*; 3, *Crocus nudiflorus*; 4, *C. speciosus*. F. G.—1, *Lygodium scandens*; 2, *Pteris scaberula*; 3, *Pteris elegans*; 4, *Begonia nitida*. Lyffe.—1, *Rondeletia speciosa*; 2, *Combretum purpureum*; 3, *Jasminum Sambac*; 4, *Tacsonia mollis*; 5, *Fuchsia microphylla*.

No. 416.]

SATURDAY, NOVEMBER 8, 1879.

Vol. XVI.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

LEAFLETS.

It is pleasant at this season of the year to notice the things that preserve their verdure, or even assume a deeper tint, when yellow and brown leaves are falling everywhere. A Bamboo (*Bambusa Metake*) in Professor Owen's garden at Sheen pleased me very much the other day. One of its most graceful shoots measured over 11½ ft. in length without a break or shoot of any kind, the stem being a very delicate green, but nearly covered with brown bracts. In sheltered corners and on warm, well-prepared soils this Bamboo thrives very well about London, and is perfectly hardy.

In the same garden on the 2nd of November, with a cold northern breeze blowing, the eye was cheered with some spikes of the Cardinal-flower still fresh. There are few plants more brilliant, more beautiful, at this season of the year, or at any season, than the Cardinal-flower (*Lobelia cardinalis*). In America it is found in low and marshy grounds, but thrives well in any garden soil, though it does not often live through the winter on cold soils about London. In warm and light soils, however, it is hardy. There used to be a fine display in the College Gardens, Dublin, and no doubt Mr. Burbidge will again have plants that thrive so well there. I hope he may be able to get the fine species and varieties that were in cultivation some fifteen years ago. Messrs. E. G. Henderson used to have them.

I regret to notice a few not very good-natured remarks on the "Pinetum" of the late Mr. George Gordon, in the *Gardeners' Chronicle*:—"As an author," the writer remarks, "Mr. Gordon was not very successful, for his book was neither exact nor discriminative enough to take rank as a botanical authority, nor was it sufficiently popular in style to take a high position from that point of view, the technical account of each plant being too loose and wordy to be diagnostic, while the uses, adaptabilities, and geography of the several trees were not sufficiently elaborated to make it attractive to the general reader. It professed, indeed, to be a 'Synopsis' of the Conifere, which it was not, unless a classified table of the genera could be held sufficient to justify such a title." Mr. Gordon, it may be remarked, took the trouble to write what was admitted to be the best book on Conifers in English, and this criticism on the work of a man who, whatever his faults, gave us the book that has served the horticulturists of the United Kingdom well for a good many years, is both unmanly, unjust, and especially uncalled for and ungracious in an obituary notice.

This kind of reading will be sadder matter than it now is if what people have not done is to be compared with that which they have done. Most men, even among those who in early life enjoy "all the chances," as they are called, are content to do nothing, so far as adding to our knowledge is concerned. The great army of the Do-nothings would probably gain some recruits if it becomes the fashion for the ghoul-critic to perform his miserable wail over the graves of those who do the best they can. However, poor George Gordon had not many friends, and was not always his own, so it is not dangerous to say unkindly things of him.

I note the following reference to Mr. Gordon in Sir Jos. Hooker's latest report:—"The very complete collection of cones and leaves of Pines belonging to Mr. George Gordon, late of the Royal Horticultural Society's Gardens, has been presented by the director, and deposited, the cones in the museum, and the foliage specimens in the herbarium. It contains the type specimens of almost every species described in 'Gordon's Pinetum,' a standard work amongst nurserymen and foresters, of which a second edition has lately appeared."

I should not be surprised if public opinion be some day aroused by the continual addition of small houses and private enclosures in the public parks of London, and a clean sweep be made of the lot. In fact, it must come to this, if the authorities do not put a stop to what is being done. Every structure of this kind means limiting the view, or presenting an ill-looking mass of brick, where one seeks the repose of trees or Grass. Then there is an enclosure, which limits the space that belongs to the public, and an addition of pathways, traffic, &c., to the house and its belongings, which in no way adds to

the charms of a public garden. Two structures have lately been erected in the Regent's Park which suggest these remarks.

I am pleased to see that the Rev. Canon Hole's popular book on Roses has been translated into German—an honour that does not often befall an English horticultural book.

In connection with the age of trees, it may interest many to know that in Earl Spencer's park, Althorpe, near Northampton, a stone with the date of their planting has been placed in the various plantations from Queen Elizabeth's time downwards. This custom was begun by Sir John Spencer. The 300 years' old Oaks, on which the herons now build, are, according to Mr. R. S. Baker, fine, tall-growing trees, with no appearance of age or decay about them. The plan, which is an excellent one, should be adopted in every place where planting is done. I know that it is being carried out at Thoresby, where the date of all the more recently formed plantations is attached to them in the form of an iron label let into the ground some 3 ft., and with sufficient base attached to it to render it immovable.

I see there is an interesting paper in the "Zoologist" on the two supposed kinds of British Martens. The conclusion of the author is that there is only one kind—the Pine Marten, now a native of Britain. In mentioning the localities, we think the author makes the animal appear to be too rare, and among the Irish ones we do not notice the county of Waterford, though it is so plentiful at Curraghmore that Mr. Speed tells us he had the greatest trouble to save the Peaches from its attacks. It used to go along the top of the wall, and, like a sensible epicure, help itself to many of the Peaches every night.

Are we not going wrong with our continual quest after "rich and sugary flavours," to quote words often used to praise fruit? A correspondent, who knows a good deal about Grapes, writes of the Paris Grapes:—"I liked the Chasselas, they were so refreshing, but we have some kinds equally good in England, only they are not in repute, because they do not produce big bunches. All the Frontignans, Duchess of Buccleugh, Black Prince, and others are crisp and good in flavour with a grateful aroma."

There is a good deal of humbug in our Grape-growing, and some pedantry I fear. The sensational bunch system has been the bane of culture to some extent. What a tale could be told of it! We only hear when success attends any one, but never of the utter collapse at the end of a few years in every case. Those at ——— had reached a low ebb last year, and this year they are absolutely barren and nearly dead. It is a case of stall-feeding and dying, like the fat bullocks in the Smithfield fog.

The public have every cause to be grateful to Mr. Bond for the way in which he has thrown the priceless treasures in the Library of the British Museum open to them. Mr. Bond began by abolishing the vexatious rule compelling every reader, whether he was of fifty years or fifty hours' standing, to show his ticket every time he entered. Readers known to the attendants enter freely, while those who are not recognised at once are asked to sign their names in a book for comparison with the signature on their ticket.

The next thing Mr. Bond did was to throw open two-thirds of the collection every day instead of closing the whole for three days a week, so that country sight-seers unacquainted with the open day are no longer sent away empty. The last great innovation is the introduction of the electric light into the reading room, so that readers can now remain there until 7 p.m. instead of being obliged to leave at 4, 5, or 6 p.m., according to the season. All this contrasts favourably with the spirit of opposition to the wants of the public shown at Kew, where, however, we do not despair of seeing a more sensible course taken in due time.

There is a pleasant story which comes to us from old times about Kew. One day King George the Third's gardener complained to him that the people plucked the flowers very much, and begged of him to close the gardens. "Do my people really pluck the flowers to that extent?" The troubled gardener assured him it was so. "Then plant more!" said the King. Of course, plucking flowers could not be tolerated in our days under any circumstances; but preventing people seeing them at any hour that the sun sees them is really too bad. Speaking of gathering flowers in public gardens, I was surprised to see people picking Cowslips in the charming grounds of the Little Trianon at Versailles some time ago, and wondered that in such a police-awed country as France it was permitted. The sentry at the gate, however, made the people part with their noses, and a vast

heap of Cowslips and wild flowers beside him at the gate showed the extent of the depredation.

"Our country is full of poor ministers and poorer lawyers, and shockingly poor doctors, who ought to have been good shoemakers or farmers, who reached their present and unprofitable station by aiming too high." Thus speaks the *New Hampshire Mirror*. "Isn't that a mistake?" asks Dr. Hoskins in the *Vermont Watchman*. "Didn't they aim too low? But, if they aimed too high in trying to be professional men, would it not have been a fault in them to have aimed still higher? For it takes a great deal more brains and energy to be a successful cultivator than to succeed in professional life, according to our observation and experience."

It would appear that our American cousins are continually tormented by a race of men called "Tree pedlars," of which we in this country happily know nothing. The mission of these individuals is to run about the country to sell trees, and some of them try to add to their business by describing all sorts of marvellous, but impossible, novelties to farmers and other persons ignorant of trees and horticulture. Complaints are continually being made in the American papers. I see by a letter in *Vick's Monthly* that certain tree pedlars in Kansas are selling a blue Rose, and claim it to be from San Francisco. As no such Rose is known here, or anywhere else, it must be put down as only another case of humbug. But a blue Rose is modesty to what they have been known to offer; they have been known to describe to us the future produce of the fruit trees they sell. Though the food and wealth-producing capacities of the country are almost inexhaustible, they are not for these gentlemen enough. Judging by articles in therural papers, and particularly in the *American Agriculturist*, the number of persons who regularly pursue this most impudent kind of swindling seems far greater in America than here.

One of my pleasures is to take up the *Californian Horticulturist* and see what is doing in that far-off sunny land of mountain, noble forest, and warm plain; and which, more, perhaps, than any other country, has been rapidly turned into a garden land. As everybody knows, the first people only settled in it in 1849. Mr. Shinn, the editor, writes very pleasantly on the native and garden plants of the country; and one often sees a sketch of some beautiful plant-life peculiar to the country, and yet interesting, because it often concerns plants that are hardy with us.

Here are a few words on Lilies of native cultivation:—"The mountain children whom one meets on their way to school these July mornings, load themselves down with what they call Tiger Lilies, or in other words, *Lilium Humboldtii*, whose spires flash out with wonderful brilliancy around the bases of volcanic rocks, or near shattered ledges, or on the hard red clay of the hillsides. One of our authors, who studies with loving and analytic mind the colours and sounds and meanings of the Sierra woods, has called it "carne-lion-hued," with its orange and amber ground, veined with black. In favourable places we have found Lily stems as tall as a man. The bulbs are deep down, and not easily dug out. Some insect bores into and ruins many a choice bud. This Lily loves company, being always found in groups. Where you see one yellow flash you may be sure there are others near. After blossoming time is over, the stalks disappear very quickly. By following up the long ridges blossoms may be found in perfection for several months. The same is true of the lovely white Lily, *L. Washingtonianum*. Both species are in perfection in Nevada County."

I see that Mr. Falconer, formerly of THE GARDEN, describes in the *Rural New Yorker* a horticultural club of a new kind:—"The ladies of Garden Street, which bound the Cambridge garden on the west, have got up a club, which they call the Garden club. Their object is to assist one another in horticultural knowledge, by relating their experience regarding the cultivation of outdoor and window plants, experimenting with 'new' things, and clubbing together for the purchase of seeds and gardening periodicals. They meet once a week at some member's house when horticultural topics are discussed within, and the garden examined without." This is a very good idea, but can only be satisfactorily carried out where people are really fond of the art.

Yet another letter to the *Times* about the trees in Kensington Gardens. "Living in Prince of Wales Terrace, Kensington, I am naturally interested in the preservation of the fine group of trees growing in the gardens just opposite to the end of the terrace. On Friday morning last, soon after nine o'clock, I observed that one of the finest of the trees had been cut down and was being carted away. On every morning since, except Sunday, another tree has

been cut down and carried away. The felling of the trees being done very early in the morning, and everything carried off and the ground duly levelled and set to rights before ten o'clock, is evidently done to escape observation.—HENRY THOS. COLE." One never sees the true remedy for the old and dying trees given in these letters, often as it has been given in THE GARDEN, that is, the planting annually in the best manner a certain portion of the ground in each park with the nobler hardy deciduous trees.

Mr. George Syme, whose communications on various subjects have been published from time to time in THE GARDEN, has been appointed to the curatorship of the botanic gardens, Castleton, Jamaica, an excellent choice, Mr. Syme being well acquainted with plants in a living state, and also, as our readers know, familiar botanically with that most important family—the Coniferae.

JUSTICIA.

Destruction of Gardens in Spain.—The following extract from a private letter, dated Aguilas, Spain, Oct. 20, has been sent to us for publication: "You will have seen in the newspapers accounts of the awful storm that has visited us. Whole farms have been swept away, not only the houses and stacks, but the trees, crops, and even the earth down to the bare rocks underneath. About 20,000 Fig trees alone in this district have been uprooted and carried away, and the crops in the lowlands covered over with, in some cases, 3 ft. of stones, brought down by the swollen streams. At the farm of a friend of mine there is literally nothing left—Vines, Almonds, Fig and Pine trees, water-tanks, and garden, which had taken twenty years to get into order and perfection, all gone, and even the ground is all washed away. The news from Murcia and Lorca is fearful. The plain of the former, which was full of gardens of Orange and Lemon trees, groves of Olives, with other fruit trees of every description, is under water for a distance of twenty miles, and when this subsides the mud and debris will cover everything, and all the garden crops be spoilt. About 1000 houses round Murcia alone are calculated to have been either knocked down or carried clean away. Over 200 dead bodies have been found already, and the work is only just commenced. In Lorca, 32; Sierra Almagrera, 30; Puerta Lumbreras, 10; Alcantarilla, 8 have been found, but the number of missing is something beyond belief. At Lorca the water came down the river like a wall. The suburbs are more than half gone, and what was a few days ago a series of well-cultivated farms and market gardens, with pretty country houses and flower gardens, is now an immense mud plain—there is no other word for it."—*Times*.

New Paint.—The danger of inhaling the vapour of turpentine has been long known, and its pernicious influence on the health is beyond all doubt, as has been verified in several cases occurring in persons sleeping in newly painted rooms, some of which have even proved fatal. Several theories, more or less plausible, have been propounded to explain the prejudicial effects of the inhalation of these vapours: but, whatever be the correct explanation, there is no doubt of the danger of occupying a room recently painted in which turpentine has been employed, before complete dessication has taken place. It was pointed out by the Council of Hygiene, that a sudden death which recently took place in Paris was attributable to this cause, it being shown that it could not be ascribed to the lead which entered into the composition of the paint of the room in which the deceased slept; the lead, being fixed and non-volatile, cannot in these cases be accused of being the offending element.—*British Medical Journal*.

Poisoning from Yewberries.—Children are very apt to pick and swallow the attractive berries of the Yew. The practice is a most dangerous one, and ought to be carefully kept in check, as is shown by the case of a little boy on whose body an inquest has been held at Oxford. The child, according to the *Daily Telegraph*, had been strolling through a cemetery with his friends, and, while playing about, he had plucked and eaten "a handful of Yewberries." No evil effect was noticeable until next morning, when he awoke in convulsions, and died before even a doctor could be fetched. The poison seems to have attacked the nerve centres, but in what specific manner it is not easy to say. Every poison is a possible remedial medicament, and therefore the Yewberry may have valuable uses. Like many other vegetable poisons, it does not seem to be made the subject of careful experiment, so that no antidote to it is known. Yet why should not toxicologists make a study of this and of several other common but baneful growths? Deaths are constantly occurring among children who pick and swallow these things, and science might do something to protect them against the fatal effects of their ignorance.

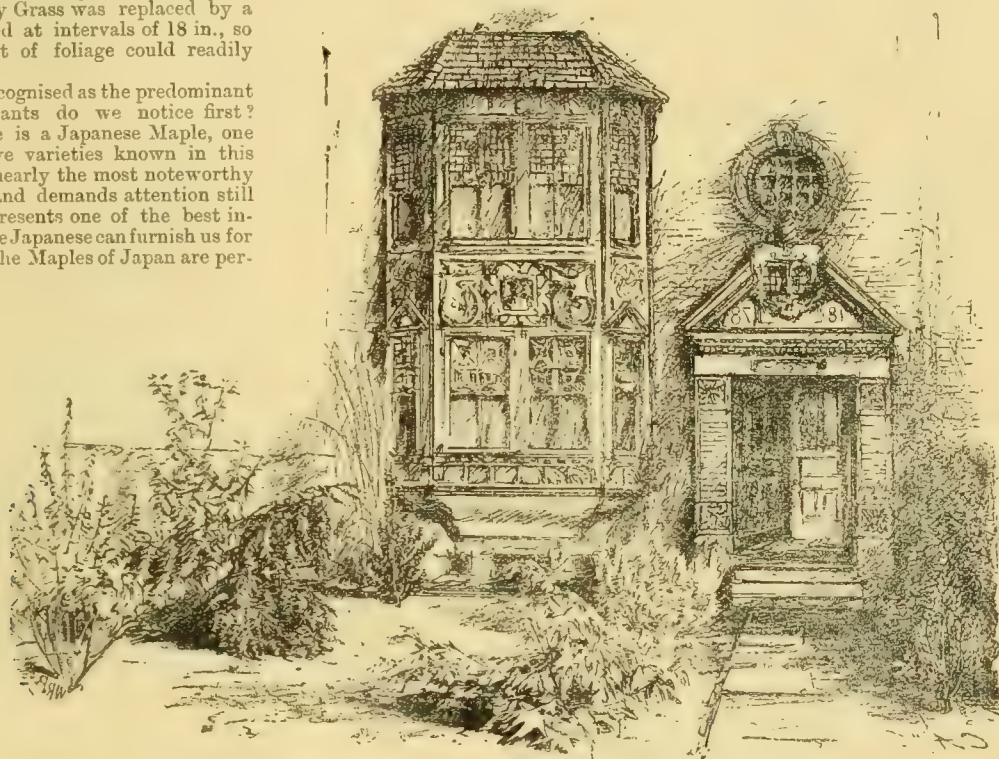
Leycesteria formosa.—This has flourished in my garden for many years without the slightest protection, and thousands of self-sown seedlings make their appearance annually.—J. H. N.

TOWN GARDENING.

It is a difficult matter to plant a town garden permanently on account of hot pavements and walls, and cold currents of wind. Many plants fail altogether, others pine, and others grow too large. Knowing indeed the frequent failures of such undertakings, we feel impelled to describe to the reader how we once planted, or helped to plant, a city garden, and how it looked when it was done. A friend had a piece of ground, on which he had erected a house as far back from the street as convenience would permit—some 20 ft. On this space he tried to grow Grass and plants, but did not succeed. Disheartened by failure, he came to us one spring, purchased some plants, employed two workmen, and in due time produced a piece of miniature lawn-planting, which appears in our illustration as it looked after ten years of careful fostering. The production of turf was of course first attempted. The lack of good turf is almost fatal to the beauty of any possible selection of plants. Here, where all is foreground in a certain sense, a large amount of the general tone and colour of the place must come from turf. Ornamentation becomes in such cases like the decoration of a room. The turf must make the carpet whereon the ornaments are to be arranged. In this case the unsatisfactory Grass was replaced by a turf of Ivy planted at intervals of 18 in., so that a thick mat of foliage could readily develop itself.

The Ivy turf recognised as the predominant feature, what plants do we notice first? Here by the gate is a Japanese Maple, one of the twenty-five varieties known in this country. It is nearly the most noteworthy plant in the lot, and demands attention still more because it presents one of the best instances of what the Japanese can furnish us for lawn-planting. The Maples of Japan are per-

they always require more skill to keep them healthy than deciduous trees or shrubs. The Japanese Cypresses or *Retinosporas*, as a group, have a remarkable fitness for city gardens, considering the fact that they, too, are evergreens. True, certain varieties grow to a considerable height, but most forms are slow and of moderate growth, if they are not actually dwarf. Their forms are indeed legion. They are drooping or erect, Fern-like or Lichen-like, and even pass into curious thread-like shapes. In colour they are golden, variegated, and green, but chiefly of a bright glossy green. At the time of the formation of this tree its size is about 1 ft., although it is by no means young. In future its spray-like forms will grow considerably, but pruning, to which it is specially amenable, will readily restrain it, without danger of malformation. This peculiar ability to bear with the utmost ease the strain of pruning distinguishes *R. plumosa aurea* above most other evergreens, and makes it well fitted for city planting. The general colour of its foliage is a broad suffusion of gold, which, when the plant has been pruned systematically, remains unusually bright in winter. No other evergreen, perhaps, equals it



A Town Garden.

haps most free from the peculiar characteristics that make so many plants Japanese born and bred, wonderful, but not beautiful in our eyes. These Maples are miniature trees, with a free, full development that suggests neither deformity nor stunted conditions. Their dimensions would not in twenty years increase enough to unfit them for city gardens, though they never should receive a touch of the pruning-knife; and as to hardiness, we can only say that in this respect they equal any Maple, with the added toughness of all dwarf trees. The leaves of these Maples are beautifully variegated during summer—white, green, and yellow mingling on the same surface, and these same leaves are divided and sub-divided until they become mere shreds of tissue. It is always curious to note that the most diminutive and complex types belong to the hardiest and dwarfest varieties. But we have not done with Japanese plants. Along the walk directly behind the Japanese Maple is a golden Japanese Cypress (*Retinospora plumosa aurea*). This arrangement has been intended to produce contrast between evergreen and deciduous plants, between a larger and more erect form and one smaller and more compact. Winter effects have also been considered in using evergreens, although it should be noted, at the same time, that evergreens are especially difficult to grow in cities. Occasionally they will die, and

in this quality, and it is a quality very valuable for city lawns, where bright and varied colour in winter is specially grateful. It is easily transplanted, and might be common, for it is easy to propagate. The general appearance of these *Retinosporas* resembles that of an *Arbor-Vitæ*, only they are more varied and spray-like in form, richer in colouring, and hardier and better in every way.

On the other side of the door-way we have a Japanese Snowball. The supreme excellence of this shrub lies in its rich character. Everything about it is excellent. The soft, brown, fuzzy stems, the dark green, heart-shaped leaves, piled in picturesque masses when the plant has been properly pruned, and above all, the large, pure white snow-ball flowers, make it very choice and attractive. Indeed, the contrast between the shining, crinkled green leaves and the well-rounded flower-clusters is always striking. These flowers, moreover, hang to the branches five or six weeks, and drop unbroken. Standing out prominently on the open turf is a weeping Hemlock of lighter and more rounded habit. Indeed, all these lines are models of curving grace. Like the Japan Snowball in the one quality of picturesqueness, it needs much the same care in pruning to develop its full charms and to restrain it and adapt it to a city garden. The beautiful sprays and tendrils should be encouraged in their irregu-

larities in order to obtain a characteristic and graceful form. Another prominent feature of this part of the picture is a beautiful *Spiræa prunifolia*, a deciduous plant intended to contrast with the evergreen Hemlock. The curious small leaves and the set of branches of this *Spiræa* are very characteristic and assort well in a group of varied shrubs. It is, moreover, the Bridal-wreath *Spiræa*, bearing lovely white flowers in June. Through the summer, its shining, oval leaves contrast strikingly with other foliage; and, late in autumn, few plants present more beautiful colours. Only two more plants await our admiration to complete the assemblage of more prominent shrubs and trees visible in the picture of this miniature lawn, and both of these are again Asiatic and one Chinese. The first, a tree-box, needs only to be mentioned to call up visions of stately gardens of the eighteenth century—clipped Yews and Box-trees wrought into the similitude of strange beasts and other quaint devices in the old formal manner. But now in our modern world, art is demanding the presence of nature everywhere. Except in retired corners, we cannot properly practice the old formal manner, yet we may still employ the Box-tree as satisfactory as ever. Very many city gardens show its value where the passage of years has left it healthy and flourishing. Probably nothing in the way of plants withstands injurious city influences better. Then, moreover, it is an evergreen—an evergreen shrub with distinct conspicuous leaves and vertical lines of growth which accord well with the architecture of city houses. Its bright living green is also compact and so patient of pruning as already noted, that its growth may be guided at will. Another plant, a Tamarisk (*Tamarix indica*), grows close by the corner of the house. Its waving elegance forms a strong contrast with associated shrubs and serves to lighten the general effect of the place. Very distinct and exquisite also is the foliage of the Tamarisk—fine as fronds of some delicate tropical Fern. The flowers come late in summer and early in autumn, fringing the foliage with drooping pink lace-work.

At a later date, two other striking plants have been added to the lawn with a view perhaps to replacing eventually some shrub grown old and unsightly. They are both Japanese, but the first, the Parasol Pine, is perhaps the most extraordinary lawn plant of the curious Japanese flora. It is greatly prized in Japan and grows there to a considerable size, with shining whorls of strange-looking glossy foliage disposed in thick masses. Perfectly hardy, it is likewise, on account of its dwarf nature, well adapted to small lawns during at least twenty years of its life. During the first three or four years, it hardly grows as many inches, and is always rich and unique in its appearance. As yet it is an extremely rare plant in America, where there scarcely exists a specimen over 4 ft. high. The second, the Japanese Cypress, is a very rare variety, decidedly the rarest plant on this particular lawn; but it is also very beautiful with its thread-like masses of golden drooping foliage. It is dwarf and well fitted for small places, and has an advantage over the common golden Japanese Cypress (*R. plumosa aurea*), inasmuch as it needs little pruning to retain a compact shape. Of all plants suited to the miniature lawn, few surpass in native charm the hardy herbaceous plants, many of them familiar wild flowers. On our miniature lawn, the less and less fashionable crudity called "ribbon planting" would be almost inappropriate, not to speak of the trouble of replanting such plants every year. All the richness of colour in flower and leaf of bedding plants may be obtained in a more delicate and fitting way for small gardens by the employment of hardy herbaceous plants and bulbs that flourish for years in the open ground.

Few other features of our city lawn remain to be mentioned. Star-shaped Clematises creep over the borders of the Ivy on the ground, as well as over the fence. Japan creepers cling to the stone-work of the lower part of the house, and from sundry nooks peep out white Snowdrops, yellow Crocuses, and the tiny bells of the Lily of the Valley. To vary further the colour of the green Ivy tuft, low-growing, richly coloured herbaceous plants, like the creeping yellow-leaved Moneywort, wander about at will. Purple Asters, blue Aquilegias, and lovely Day Lilies appear here and there on the out-skirts. Everything combines to make a very complete miniature lawn. But such lawns will not care for themselves. The shrubs need thorough culture, and especially pruning, to adapt them to their confined location. Summer pruning is very important, particularly for the Ivy, whose wandering tendrils need occasional training, as well as pinching. This care, however, is not irksome, for there is little to be done at a time; and in any case, we doubt whether other adornments of home will afford equal pleasure with less expense.

Let us now give our attention briefly to another typical, but entirely different, instance of lawn-planting, viz.: a country home of the commonly occurring dimensions of 100 ft. wide by 200 ft. long. Citizens going to their business daily, and possessed of moderate means, frequently occupy a place of this size in some neighbouring village or suburb of the city. Consequently, a few hints afforded by the description of an existing lawn will scarcely come amiss to

many, who, if they realize how much adornment of this kind is possible for them, must be sorely puzzled to secure the fulfilment of their desires. The place to which we refer is that of a neighbour, who a few years since purchased it, in a so-called improved state, and gradually has made it, from the crudeness and almost chaos of its former condition, a truly delightful spot. Originally, the lawn was covered promiscuously with Maples, Arbor-Vitæs, old fruit trees, neglected-looking Rose-bushes, and rows of rudely-clipped shrubs. The new owner of the place changed all this by cutting down everything except a few trees along the fences, and two notable specimens, of which more hereafter. He then subsoil-ploughed the lawn, spading only such parts as the plough could not readily reach, and sowed it with Grass seeds.

Good turf obtained, the walks were carefully laid out in long, graceful curves, with shallow Grass edges, neatly trimmed. Every winter fertilisers were applied to enrich the Grass, and a perfect surface was always maintained throughout the season by the use of a lawn-mower. The house, being on the north side of the garden, afforded abundant protection for choice plants, and secured the employment of large and effective masses of evergreens, as part of the same shelter. Among the trees that had been preserved from the general destruction that befel the old plantation, were two specially



Weeping Pine (*Pinus ayacahuite*).

attractive specimens. It was really wonderful how they came to occupy the positions they did, and indeed, how they came to be on this lawn at all, for the other trees used were by no means choice or rare. These two specimens, on the other hand, were both choice and somewhat rare. One of them, the Cut-leaved Weeping Birch, stood by the summer-house and hung graceful sprays above its rustic angle. Indeed, at this point in the picture, the bolder colour effects of the lawn-planting seemed to culminate. Rising 30 ft. above the summer-house, the white bark of the Birch split into strange devices, and the delicate grayish-green foliage made a fine effect against the masses of large Norway Spruces near by. The other noteworthy tree retained is a Nordmann's Fir, by some termed the king of evergreens. It stands by itself, equally removed from the clustered shrubbery of the outer boundary, and from the choice plants along the only footpath. After the Cut-leaved Birch, it is decidedly the most imposing and important tree upon the lawn. Growing as it does in a massive, stratified manner, with a blue silvery lining under the leaf, the compactness and symmetry add greatly to its beauty. And what a grand specimen it is—30 ft. high and without a flaw!

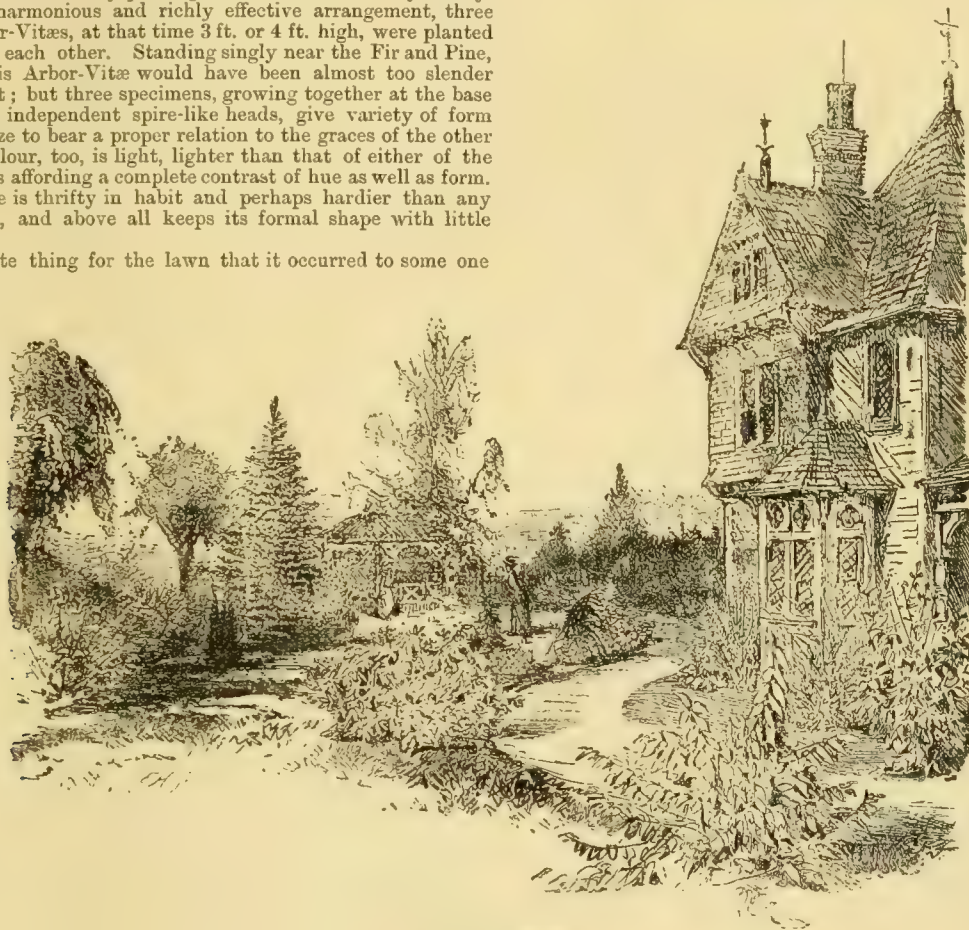
Two varieties of evergreens are grouped about or near the Nordmann's Fir. They are small, 6 ft. to 9 ft. high, and were planted by the new owner some eight years before. Their arrangement has been made with the view of affording a measure in height for the larger trees as well as a complete and harmonious contrast of colour.

The most noteworthy of these is *Pinus ayacahuite*, a rare Mexican Pine of decided beauty, of which we give an engraving. Although this Pine comes from Mexico, it is generally hardy in the Northern States; it is the nearest approach to a Weeping Pine that we have, if we except *Pinus excelsa*. The branches, indeed, do not droop, but the long pendent clusters of needles give a weeping appearance to the general effect of the tree. In the young plant the shape shown is decidedly pyramidal; but as it grows older, it assumes more of the usual spreading appearance of *Pinus excelsa*. The latter has occasionally suffered from a peculiar disease,—but for beauty of colour and form it is nearly equal to the *Pinus ayacahuite*. We notice even now in youth that *P. ayacahuite* has a more open appearance or branching than the Nordmann's Fir, against the shining dark masses of which its rich blue colour stands out in beautiful relief. There is a slight resemblance between the outline of this specimen and that of the Nordmann's Fir, but not too much when accompanied by contrasting bluish-green colour. The growth of this tree is moderate and easily restrained by pruning, to which it takes very kindly. To complete a harmonious and richly effective arrangement, three pyramidal *Arbor-Vitæ*, at that time 3 ft. or 4 ft. high, were planted within 2 ft. of each other. Standing singly near the Fir and Pine, one plant of this *Arbor-Vitæ* would have been almost too slender and insignificant; but three specimens, growing together at the base and developing independent spire-like heads, give variety of form and sufficient size to bear a proper relation to the graces of the other trees. Their colour, too, is light, lighter than that of either of the other trees, thus affording a complete contrast of hue as well as form. This *Arbor-Vitæ* is thrifty in habit and perhaps hardier than any other of its race, and above all keeps its formal shape with little pruning.

It is a fortunate thing for the lawn that it occurred to some one

growth, is unsurpassed for weeping grace. Imagine one of these naturally weeping specimens fixed permanently by grafting at the best development of its pendulous habit, and you have the true Weeping Hemlock. It is indeed rare and difficult to propagate, yet it would, nevertheless, be brought into common use could people generally see its great beauty.

Near the Weeping Hemlock, with perhaps a deciduous shrub or so between, are four very distinct dwarf evergreens, distinct and curious, especially from the manner in which they are grouped. They consist of the Weeping Norway Spruce surrounded closely by three dwarf White Pines. Norway Spruces and White Pines are always associated in our minds with large, massive forms, but here are White Pines that in twenty years need scarcely reach 4 ft. The Weeping Norway Spruce, too, is dwarf, but in a very different way. The forms, moreover, are perfectly natural, in no way the result of pruning. And what curious plants they are—the one rounded and



A Suburban Garden.

to plant the Nordmann's Fir just where it stands, for it is the making of the place artistically considered. Colour as well as form are here grouped harmoniously and yet boldly. The variety in height, the different shades of kindred colour, the columnar, spreading or open, and the massive conical forms, all combine into an instance of what we conceive to be good lawn-planting composition. A sense of coziness is suggested by the semi-detached lawn or croquet-ground of this part of the place—features that are defined, as it were, by this very group. Further variety of detail is given to the scene by climbing Honeysuckles and Wistarias clustering about the rich, solid proportions of the rustic summer-house. Across the lawn, past the border of the croquet-ground, is a beautiful Japan Judas Tree; it is a lovely shrub, with early pink flowers and rich green leaves, and does not grow high enough to interfere with the sunset view. Across the path from this plant is a group of the rare and exquisite Japanese Maples. Nearer the house, and still on the path, is a graceful Weeping Hemlock, already noticed as one of the choicest of evergreens. The common Hemlock, in certain conditions of its

compact, with long, well-defined needles and softly-blended colours of blue and green, and the other dark, grotesque, and erect. A little farther along the border of the walk, and near the turn leading to the front of the house, stands a Rhododendron. This beautiful plant is specially effective at this point, as it not only varies the curve of the walk, but presents a delightful object in view of the bay window, about which are Ghent Azaleas and other flowering shrubs.

It is not, indeed, an expensive lawn, having scarcely cost \$500 for all the plants; but there is something of everything hardy to be found on it. Blue and white Wistarias form a cordon of bloom along the eaves of piazza and balcony, and Honeysuckles, Virginia Creepers, &c., fill a part of the space between the columns. The Japan Creeper and the great purple or white flowering Clematises creep about here and there. Young vigorous Roses bloom in nooks of shrubbery. Violets peep out early in unexpected places, and familiar wild flowers lurk in favoured spots. There is no startling display of beds of flowers, any more than there is in woodland glades; but the plants seem at home. In front, along the road, is a wall of

solid masonry, neatly capped with stone by the new owner, and covered with Japan Creepers. Immediately within are Purple Beeches, rich and dark. A Weeping Beech stands in the corner where its expanding foliage has plenty of room, and at intervals are fine flowering shrubs of large size, like the Chinese Magnolias. Along the path to the front door are planted choice dwarf deciduous shrubs. The outlines of shrubbery and trees have been made up in the ordinary way, with Norway Spruces, White and Scotch Pines, Elms and Maples, with such common large-growing shrubs as Lilacs, Philadelphuses, Dogwoods, Spiræas, and Weigelas. The grouping of these ordinary shrubs and trees is naturally arranged after that of attractive bits of outlying woodland. The perfect keeping of the paths of this place is also noteworthy; but better still is the regard shown for the health and well-being of the plants. Contrary to the usual habit of people who have no gardener, the plants have not been treated according to the mere advice of others, but have been made to thrive in a peculiar way by a painstaking study of their individual wants. —*Scribner's Monthly*.

HORTICULTURAL EDUCATION IN ENGLAND.

ANY one who thinks of the state of horticultural education in England must be struck with the total inadequacy of any provision for it. However much one may doubt the benefit of such teaching as a young man can get in one place such as we at present possess, nobody can doubt that it would be possible to teach in a properly organised horticultural school a great many things that would be of the highest importance for a gardener to know. It would, for instance, be very easy to arrange a country garden, so that young men, sufficiently intelligent to do so, could learn all about the hardy ornamental shrubs and plants. The fact that this is not taught is a great loss. It is the cause of the utter want of interest that exists in the majority of country seats and gardens, and it is entirely owing to this that people interested in them are unacquainted with the great number of beautiful things which they might have around them. Intelligent men, even in good places, do not often know the names of some of the most important hardy trees around them; and this is not so much their fault as that of the want of some proper provision for teaching these things. If it were a fixed law that the country should spend no money in founding institutions of this kind, one could at least understand it; but the fact is that enormous sums are now annually given for City and State horticulture in the public parks and gardens of London, and it is to be regretted that some of the liberal means thus provided are not devoted to systematic teaching. We have, however, hitherto been accustomed to consider that the sister art of horticulture, *i.e.*, agriculture, had been better off in this respect; but this is not so, judging by the following remarks which appeared in the "Country Gentleman," and which are well worth reading by all who care about the progress of the rural arts in our own country:—

Among the agricultural educational agencies in England, one naturally thinks first of the Agricultural College at Cirencester. This institution is the only one of the kind in England, and has been in operation for a long series of years—sending out its first graduate in 1847. The total number of graduates has been 207, the average for the last seven years being seven. The number of students has never been large, and is now smaller than it was some years since. In a number of respects the institution is quite different from anything in America, and I paid it a hasty visit with interest. I can hardly say I was disappointed, but I certainly came away with not very much hope of wide usefulness for the college. The facilities for instruction are fair, no more. The college building is large, rather showy, but not very suitable for the purpose. The library, museums, &c., are not large nor remarkable—not nearly equal to those of several of our State agricultural colleges. There is a veterinary hospital and a small workshop. The faculty includes the principal—in whose charge the institution is placed—and professors of agriculture, chemistry, mathematics, natural history, veterinary surgery, drawing, and two lectureships. The course of study extends over two years, and seems well arranged to "train men for agricultural employment, whether as owners or occupiers of land, land agents, or stewards." No attempt is made to give a general education. The course is made up of instruction in agriculture and veterinary science, with chemistry, botany, geology, physics, some mathematics, and drawing. The first obvious obstacle to the wide usefulness of the college is that it has seemed necessary to make the fees paid by the students so high that the class which one would naturally expect to be most benefited by the college are not able to attend it. Thus the annual charge for "in students" is £126; for "out students" £51. Where the student wishes a private room in the college building, he pays £27 additional. Of course only men of comparative wealth can pay such fees, and, as a matter of fact, the sons of common tenant farmers do not attend. The students are generally sons of wealthy

land-owners, who wish to gain some knowledge as a help to managing their own estates, or young men who are preparing to be estate agents. It is the exception when a student expects to become a practical farmer in our American sense of the words. It will readily be imagined that such students as do attend will not, as a rule, interest themselves very heartily in the practical part of the agricultural instruction. They may or may not take interest in the scientific studies.

What is called the college farm contains about 500 acres. It is owned by Lord Bathurst, and occupied by Mr. Russell Swanwick, the well-known Cotswold and Berkshire breeder, and a graduate of the college. Mr. Swanwick largely delegates the management of the details of the farm to his bailiff, or steward, who is an intelligent, common-sense Scotchman. The college has no control of the farm, but its students and professors are permitted to go over it at any time, and the students are expected to keep an account of the daily operations on it. Daily class visits to it are provided for in the programme. The college has been quite unfortunate in having frequent changes in its faculty. Within a year three or four changes have been made. These have caused a great deal of adverse criticism in the English agricultural papers. It is clearly evident that the principal has not been fortunate in his management in a number of ways. Except the principal, those of the faculty whom I saw were young men. Prof. Cathcart, in charge of the Agricultural Department, is quite young, but is spoken of as a good student in his specialties, and impresses one with his intelligence and interest in his work. One feature which impressed me favourably was that of having an examination in practical agriculture conducted by a representative farmer, which intending graduates must undergo. This year this examination was conducted by Mr. John Clay, one of the most successful farmers of the south of Scotland. Among the graduates of the college there have been some strong men. Careful attention to the course of instruction as laid down could not fail to be of much help to any one proposing to interest himself in agriculture. It is much to be regretted that the institution is not able to arrange so that the poorer classes of tenant farmers could send their sons to it, and that it does not possess the hearty good will and confidence of the farmers of the country.

The British government has done comparatively little for agricultural education. The college is in no sense under government patronage. Quite recently the government has arranged to have courses of lectures given on the elements of science relating to agriculture in different parts of England; that is, it aids such lectures by giving payment to the lecturers or teachers for every pupil who passes a satisfactory examination on the course given. In further aid of such instruction a course of lectures was given last July, in London, under the auspices of the Science Department of the South Kensington Museum, by Professor Henry Tanner, to a class of seventy science teachers. Of these fifty were selected by the government, and their expenses paid; the others attended at their own expense. I had the pleasure of hearing two of these lectures, and was much pleased with them. Professor Tanner is well adapted for such work. He is more than usually clear and forcible in statement, and very fortunate in the use of illustrations. Two difficulties occurred to me as I listened. The teachers present were intelligent, fairly educated men; but I suspect very few of them had any particular acquaintance with agriculture save in the most general way, and I am not at all sure that listening to a course of forty good lectures would very well fit them to give the instruction which would be useful. The second difficulty is much more serious. I do not see much prospect of their securing classes to which they may lecture. It can hardly be expected that farmers will attend such lectures, and I fear few neighbourhoods contain many men who will feel such an interest in the matter that they will be willing to send their sons and pay the necessary fees—for the government payment is only designed to supplement the fees paid.

"*Dictionnaire de Pomologie*."—This excellent book, by Mons. André Leroy, of Angers, has just been completed, so that it is now possible to see in its entirety how noble and how useful is the work he has done concerning all our hardy fruits. In this country we have never had anything like it for completeness and trustworthiness. The history, names, and synonyms of the fruits are thoroughly treated of; but, still more important, the questions of culture and propagation receive the share of attention that they deserve. These points have been too frequently overlooked in books which dwell enough on technicalities, and leave out the greater questions of culture, adaptability of the tree to certain stocks, soils, or climates. In Mons. Leroy's book the stock that the particular kind does well upon is indicated, and there is a sectional drawing of most of the varieties. The whole plan and execution of the work forms an excellent memorial of its now deceased author, also so

favourably known by his famous nurseries at Angers. The book, which forms a valuable addition to the country house library, may be obtained at our office, and the six volumes cost 30s.

ST. JOHN'S VICARAGE GARDEN, RYDE.

A NEIGHBOUR of mine, not particularly (as will be seen) distinguished for his love of flowers, some two years ago exchanged duties with the vicar of St. John's, Ryde. Knowing what an ardent lover of flowers the latter was, I said, "You must have been delighted with the garden." His reply was, *Horribile dictu!* "the most untidy garden I ever saw." It was in this "untidy garden" that I spent a couple of most pleasant hours the other day with my friend Mr. Ewbank, whose name is so well known to all readers of THE GARDEN as an enthusiastic and successful grower of herbaceous plants; and I could quite understand what my neighbour meant. Had the garden been arranged in beautiful geometric order, with beds of flaming colour, or with patterns of butterflies, grasshoppers, &c., in carpet bedding, he would have been in ecstasies over it; but arranged as a herbaceous garden, and seeing it in August, when such gardens are not at their best, he could find no other term for it but this. Need I say I did not find it untidy, and that I gained much valuable information in chatting over our favourites.

That Mr. Ewbank has great advantages, both in situation and soil, he is the first to acknowledge. In the first place, the Isle of Wight is well known for its mild and genial climate as compared with the mainland close by; then he has, perhaps, the most favoured garden in Ryde. Facing him is a large belt of fine trees, which effectually shade him from the east and north winds, which, even in the Isle of Wight, are so injurious to vegetation. His garden lies fully exposed to the south, and, consequently, the only difficulty he has to contend with is want of shade; but this he has managed to overcome in the case of plants particularly requiring it. The soil is a good free loam, which suits so many herbaceous and Alpine plants; and then his garden is elevated on the top of the hill outside Ryde, on the road to Havenland and Brading, so that he escapes the damp and fogs to which the lowland gardens are exposed. All these are great advantages, but they are advantages which a less experienced gardener would not make so much of as Mr. Ewbank has done. At the risk of making the mouths of some of our hardy plant lovers who read THE GARDEN water, let me mention a few of the plants which do well in the open air. These are *Habrothamnus fasciculatus*, most vigorous; *Mandevilla suaveolens*, *Eucalyptus*, *Cantua dependens*, *Agapanthus umbellatus*, and *Daphne indica rubra*. This will sufficiently show how exceptionally mild the situation must be, when, after such a severe year as that we have passed through, these plants should be flourishing and showing no symptoms of suffering.

The front of the house is beautifully covered with creepers, variegated Ivies, &c., and the east end of the church abutts on the garden, so that it is impossible to imagine anything more delightful in the way of a vicarage than this is. Let not your readers imagine that all this implies the *dolce far niente* of an idle life; the church is a very important one, and Mr. Ewbank shows the same zeal and energy in the management of his parish that he does in the cultivation of his garden; indeed, but for the relaxation afforded by the one, it is doubtful whether he could so effectively endure the labour of the other. In the front of the house, facing the north, he has made a bed for his Lilies, and another for *Cypripediums*, *Trilliums*, and such moisture and shade-loving plants; and fancying that the roots of the trees and shrubs might intrude themselves into the Lily bed, he has made a wall under ground about 4 ft. deep, so as to prevent their doing so. As he believes that damp getting into the crowns of Lilies is the great cause of their not succeeding in the open air, he has just had made some covers—simply two pieces of wood nailed together like a roof, which will just cover the crown of the bulb in winter, and so throw off the water. There are one or two other protectors which he has contrived, and which have been already mentioned in THE GARDEN, but which I must notice again as being very effective for the purposes he has designed them for. One is a circle of perforated zinc, which he uses for the purpose of keeping off those enemies of the rockery or border—slugs, which so often prove destructive to the more tender and delicate-growing Alpines. The other is simply the placing of a sheet of glass over some of those plants which suffer from damp getting in among the foliage, as many of the Alpine plants coming from very high elevations are covered with snow during the winter months, which effectually wards off the damp, and then when the snow melts in spring they are pushing on their growth and able to take care of themselves. We cannot cover them with snow, but a protection of this sort may be a good substitute for it. It is astonishing how many different species may be grown in a garden of this description, especially

where care is given to make a selection rather than to form a collection of species. Thus there are a large number of the Michaelmas Daisies, and for those who have a large garden it may be interesting enough to have them, but an ordinary lover of flowers will be satisfied with some six or seven good varieties. Then again the Alliums are a numerous family, but except for a botanist some five or six of the best are all one would care to grow; and in mentioning some of the plants which I saw in Mr. Ewbank's garden, either on his rockery or in his borders, I am only taking a few of those which especially came under my notice.

There are a few plants about which, when I go into an herbaceous garden, I am always sure to enquire, as they seem to me to test the skill of the owner or the excellence of his situation and soil—*Androsace carnea*, *Gentiana verna*, and *Eritrichium nanum*. Now with regard to the two first of these Mr. Ewbank has succeeded admirably. He has fine tufts of *Gentiana verna* growing on the flat, but somewhat elevated, and there was even a bloom of it expanded in this most curious season. He has also fine healthy cushions of *Androsace carnea*, and this is one of the plants which he protects with glass in the winter. With regard to the third, the *crux* in herbaceous plants, he said, "Had you come a few days ago I should have pointed this out to you as one of my successes; but, alas! now it is going." Whether the gardener omitted to put the glass over it in time, or whether it was the inherent perversity of the plant I know not; but, unhappily, Mr. Ewbank must be added to the number of those adventurous spirits who have tried to woo and win this fair Alpine beauty, but who, though they have wooed her ardently, have failed to fix her affections. By-the-bye, why is it that so many of these Alpine beauties are blue? Is it that being so much nearer the sky, they draw their tints from it? *Gysophila paniculata*, a most delightful subject for cutting for nosegays, I have never been able to manage. Here it was flourishing, and Mr. Ewbank told me that the secret was to grow it in peat. Another very pretty little plant, and covered with its yellow flowers, was *Oxalis lobata*. The two Honeysuckles, *Lonicera Standishi* and *L. fragrantissima*, are valuable for producing flowers in winter, as does also *Vinca acutiloba*, while the foliage of *Berberis Fortunei*, which turns to a brilliant scarlet in the autumn, is also not only pretty in the garden, but adds to the effect of cut flowers. There were some grand looking plants of *Eryngium*, especially *pandanifolium*, succeeding well here, but I am doubtful about it in our cold climate. *Daphne Blagayana* is a very distinct species, with white flowers, and very fragrant, requiring a shady place. *Tritoma grandis*, the latest flowering of all this showy species, is very noticeable on that account, but in this season all of the *Tritomas* have been late. There is a great difference evidently between the time of flowering of plants here and in Kent. *Schizostylis coccinea* was in full bloom, while with me it was only just commencing to show its flower-stems, and what a brilliant autumn plant it is. *Aplopappus spinulosus* is a bright yellow flower, and blooms late on into the autumn. *Senecio pulcher* was nearly out of flower, but had been very fine; it is a grand autumn flower.

There are a large number of Iris of different genera grown here, and all seem to be doing well. Thus *Iris susiana*, which I have been unable to flower, here does very well; and, contrary to the general habit of the family, requires to be grown in a hot sandy place. *Iris stylosa* is amongst the best for its valuable property of displaying its brilliant blue flowers in the middle of winter. The *Kämpferi* section were all in full vigour, and had flowered well; and *Iris alata* and *hexagona* were spoken of as good species. Of the Michaelmas Daisies *A. Chapmanni*, a bright blue, was very fine, and also *A. Novæ-Angliæ*, *A. bessarabicus*, and *A. carnaticus*.

Of course the autumn flowering Crocuses were very pretty, *Crocus speciosus* being amongst the most lovely of them, and *C. Imperati* was exceedingly striking from its large and showy flowers; *Crocus pulchella* was also pretty. *Dianella cerulea*, with broad grass-like foliage and blue flowers, is a very desirable plant, as the flower is followed by bright, showy-looking berries. *Desmodium penduliflorum* is also another bright looking and easily grown plant, while *Cardamine pratensis* fl.-pl. is a pretty variation of our common English Cuckoo flower. *Geranium sanguineum*, also another native plant, is exceedingly pretty and continually in bloom. *Rosa rugosa* and *rugosa alba* were covered with their large remarkable-looking hips, and are doubtless very charming additions to our lists of ornamental plants, whether in flower or fruit alike pretty. Amongst the numerous family of Saxifrages so diverse in their character and appearance, *S. peltata* was doing well in a damp corner; *Saxifraga cæsia*, on the other hand, with its small, close rosettes, requires to be covered with a sheet of glass during the winter, as the damp is liable to rot away the foliage and so destroy the roots. Of the *Meconopsis*, Mr. Ewbank spoke highly of *M. Wallichii* (blue) and *M. nepalensis* (yellow), though he considered both as only annuals, *M. aculeatus* being also another desirable variety and perennial. *Veronicas* do uncommonly well here, and Mr. Ewbank said that

cutting them down in spring secures a good and late bloom in the autumn.

I also noticed in the greenhouse *Vitis hederaefolia*, which has bright blue berries and is very ornamental; while many other choice things one does not often see were here doing well.

It is, of course, impossible to enumerate a tithe of the plants grown in a garden like this, especially as so few were, comparatively speaking, in flower; but I have shown, I hope, what a rich garden it is, and how zealously Mr. Ewbank has contrived to collect in it some of the very choicest herbaceous plants, and has thus created for himself and his friends a never-ending source of enjoyment. DELTA.

THE FLOWER GARDEN.

VARIETIES OF PAMPAS GRASS.

To my mind the Pampas Grass loses half its beauty when not in close association with other forms of vegetation. It never appears so much at home, or displays itself to so great advantage as when springing up from amongst low-growing evergreen shrubs. The light, airy, graceful disposition of the foliage is never so well shown off as when backed up by, and partially surrounded by, compact-habited, dense-growing trees; and if the foliage of these latter should happen to be of a dense lustrous green, it serves to bring into greater prominence the silvery nodding plumes which, when well developed, form such conspicuous and charming ornaments to the pleasure-grounds during the autumn months. The Pampas Grass, when well-flowered, is such a noble addition to our gardens that it is truly a matter of regret that so many worthless varieties should be distributed. A complaint often made is, "My Pampas Grass grows well, but it never opens," and eventually the owner arrives at the conclusion that either his soil or situation is unfavourable to its growth, and discards it, when after all the failure is wholly due to a late flowering or worthless variety.

This season has been extremely unfavourable to the development of the Pampas Grass, and yet I have this autumn seen spikes of bloom, the beauty of which could hardly be surpassed. The plants bearing them were grown singly among the ordinary trade stock of a nursery, and were really models of what a Pampas Grass should be at this time of the year. It was not the size of the specimens which attracted my attention, but rather the neat habit, quite devoid of that rank coarseness which distinguishes so many varieties, and which renders them quite unfit for small gardens, and the graceful disposition and wonderful purity of the flower-heads. The quality of the latter was a matter of surprise to me, considering the adverse character of the season, as they almost equalled in appearance some plumes in my possession from the favourable climate of California. The remarkable beauty of these Pampas Grasses—so much alike, and yet unlike anything which I had hitherto seen—caused inquiries to be made upon the subject, and it was then found that they all sprung from one or two plants. The owner having had the good fortune to obtain an extra fine variety, resolved to retain it, and therefore propagated it by means of offsets. This, therefore, was the reason why the specimens were all good and of equal quality, a result hardly attainable where seedlings alone are relied upon.

It is to be regretted that we could not, in a general way, thus obtain our Pampas Grass, propagating from tried selected plants rather than planting seedlings, which appear to vary in a remarkable manner, and which often prove so unsatisfactory to the grower. A large stock is, I presume, most readily obtained by means of seed; but I imagine that but little difficulty would be experienced in working up a large quantity from a few plants were the necessary means taken to ensure a rapid growth. A free rich soil is what the Pampas delights in, and it increases rapidly in bulk when thus accommodated. Once a stock is obtained, there would be but little difficulty in maintaining it, and both vendor and purchaser would have the satisfaction of knowing that every plant would be certain to bloom well and at an early date. Even supposing the plants to cost more when thus propagated, would it not be better to incur a little more outlay, and thus avoid the vexation which must arise when the grower finds that he has filled valuable space and expended care and attention upon a plant which can never afford him any pleasure. A Pampas Grass that does not bloom early enough to develop its plumes is not of much use from an ornamental point of view, and a few such plants in a district will often exercise a deterrent effect upon planters. I would advise those who may wish to make extensive use of this noble Grass to procure a plant which has flowered satisfactorily and propagate from it; better wait a season than incur disappointment by planting seedlings. I should add that in the case of the plants above mentioned, they are by no means

favourably circumstanced, as they are growing in soil of a cold nature, and the situation is rather bleak; to the merit of the variety alone must, therefore, be ascribed the present very fine effect which the plants produce.

J. CORNHILL.

Byfleet.

THE GUNNERAS.

THE resemblance in general appearance of the now well-known *G. scabra* to the rarer kind *G. manicata* has induced not a few to consider them as one and the same species. They are, however, abundantly distinct, as may be seen by the accompanying woodcuts, which represent the form of the leaves and the relative size and shape of the singular flower-spikes. Mr. Green, gardener to Sir G. Macleay, knowing that the two species were generally considered identical, exhibited at South Kensington, on September 16, the fruiting spikes and leaves of each kind from the garden at Pendell Court, in order to show the difference between them. From these specimens our engravings were prepared. It will be observed that the leaves of *G. manicata* are much more kidney-shaped than those of *G. scabra*, and they, moreover, attain a much larger size, often measuring as much as from 4 ft. to 6 ft. across. The spikes of fruits also are very different from those of *G. scabra*, being much longer, and the secondary spikes are long and flexuose, whereas in *G. scabra* they are short and stiff. Both species are highly deserving of a place in any garden, for no plants in cultivation are so stately as well-grown examples of these two Gunneras. The largest plant of *G. manicata* which I have met with is in Sir G. Macleay's garden, where it is grown near the edge of a



Gunnera scabra (showing the habit of the plant).

lake; in this position the roots penetrate deeply into the moist soil, in which they delight; indeed, if both of the species are to attain a large size, it is indispensable that they should have an abundant supply of moisture at the roots, especially during the growing season. Perhaps the finest plant in the country of the better-known *G. scabra* is the noble specimen at the head of the herbaceous ground at Kew; it measures from 10 ft. to 15 ft. through, and 8 ft. high, and often develops leaves from 3 ft. to 4 ft. across. This specimen has attained these dimensions in a comparatively short time, as it was only planted a few years ago. The success attending it is probably due to the precautions which were taken in planting it at first. A large hole, about 6 ft. by 4 ft., deep was dug out; a good layer of drainage material was put at the bottom and filled with a rich compost of loam and manure. In summer the plant is allowed a plentiful supply of water, and, in order that a large quantity may be given at each application, a circular ridge of turves is placed round the plant, so that the water is compelled to sink down about the roots. It has, in addition to this, an annual mulching of well-rotted manure; this is given in early spring. Both *G. scabra* and *G. manicata* are apparently about equally hardy; indeed, they may be termed quite hardy if a slight protection is afforded during the severest cold. For instance, during last winter the Kew plant was perfectly uninjured, though it only had a layer of dry leaves placed amongst the stems, with its own leaves bent down upon them, which in spring were removed, and the tender growth afforded a slight protection by means of a piece of canvas shading or an ordinary mat. In mild winters this precaution is scarcely necessary, especially in the south and other more favoured localities.

All the species in cultivation are natives of South America. *G. scabra* inhabits sandstone cliffs and similar places in various parts of Peru and Chili, where it was seen by Mr. Darwin in his travels in those regions. He speaks of it as somewhat resembling Rhubarb on a gigantic scale. It is there called Panke, and the sub-acid



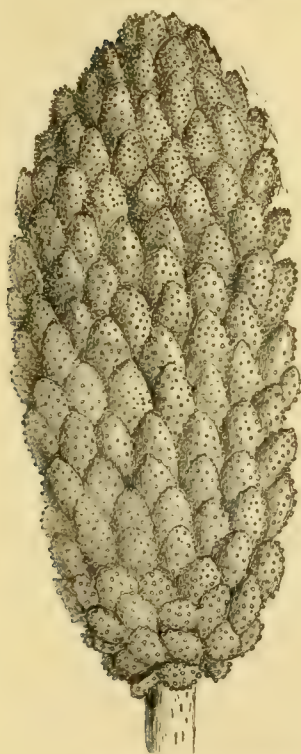
Leaf of *G. scabra* (i.e., 3 ft. to 5 ft. in diameter).



Leaf of *Gunnera manicata* (size, 3 ft. to 7 ft. in diameter).

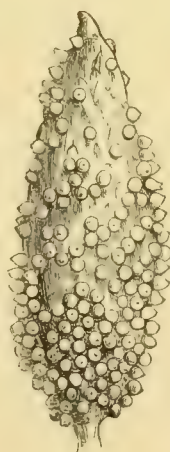


Leaf of *G. magellanica* (natural size)



1.

Fruiting Spike of *G. scabra* (much reduced).



2.

Spikelet (natural size)



1.

Fruiting Spike of *G. manicata* (much reduced)



Cp

Spikelet (natural size).

stalks are eaten by the inhabitants; they also tan leather with the roots, and prepare a black dye from them. Mr. Darwin met with specimens bearing enormous leaves which measured 24 ft. in circumference, and therefore about 8 ft. in diameter. By way of illustrating the great diversity of size and habit which often exists amongst plants belonging to the same genus, a life-sized leaf of the diminutive *G. magellanica* is here given, it being the only other kind of *Gunnera* in cultivation in this country at the present time. It does not attain more than 2 in. in height, and has a creeping habit. I have not met with it in fruit, and probably it rarely does fruit. This species thrives in a peaty moist soil in a shady position. Another kind now lost to cultivation, somewhat similar to this in habit is *G. perpensa*, a native of the Cape of Good Hope, and which was a few years ago to be found in some collections. *G. falklandica* is also another dwarf-growing species. W. G.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Variegated Grasses.—"C. M." (p. 392) by no means exhausts the list of hardy Grasses with variegated foliage. Herewith I furnish a list of some which he has not mentioned, and though possibly a few of them are not so showy as *Dactylis glomerata elegantissima*, most of them are very useful border plants, and for cutting. I may take this opportunity of stating that the large form of *Carex pendula* has been found in a variegated state, and is said to be a real gem. Single shoots of this beautiful *Carex* will be useful for the cool greenhouse and for decoration indoors. Where it can be well supplied with water it makes a beautiful pot plant. The following are the variegated Grasses to which I have just alluded, viz., *Anthoxanthum odoratum variegatum*, *Alopecurus pratensis argenteus striatus*, *Dactylis glomerata argentea striata* (a very large form), *D. g. tenuifolia*, with cream-coloured stripes, *D. g. aurea striata*, very striking. The above three varieties of *Dactylis* were found wild during the present summer. Other variegated Grasses are *Holcus lanatus aureus*, *H. mollis argenteus striatus* (new and strong form), *Holcus mollis*, yellow-striped, *Poa arvensis argentea*, *P. trivialis aurea striata*, *Phleum pratense argenteum striatum*, and *P. p. aureum striatum*. There are also several variegated Carices.—W. ELLIOTT, *Stockbridge*.

Ampelopsis Veitchi.—To get the full beauty of the fiery autumnal tints which this lovely creeper assumes, it should be planted in full exposure to sun and air. I have some under a glass-covered corridor, but the tints are not so rich as those on plants grown on open, exposed walls. It is one of those plants that are not improved by coddling under glass. I find the slender sprays very useful for decorative purposes, either in a green state or when changing colour. They do extremely well at this time of year for table decoration, as on a white cloth their colours show well under artificial light.—J. G. L.

A Beautiful Rock Plant.—A couple of years ago I saw a plant of one of the ordinary bedding *Lobelias* growing among rock-work, and in full luxuriance of foliage, and flowers, rolling over in small undulating masses, as attractive in habit as in colour—a perfect little "beauty of the rocks." It was self-sown, carried there probably among a friendly spadeful of earth from one of the flower beds near. I remember that plant to this day. In the spring of this year I purchased a book on "Alpine Flowers." Having made my rockwork according to the principles therein laid down, and having begged, borrowed, and bought all the suitable plants I could, I still found myself in the position of an individual with a large house and not enough furniture to put in it. However, I had plenty of *Lobelias* of different varieties of the *Erinus* section, and I dibbled them in among the stones wherever I could find room, and wherever I thought they would not interfere with the permanent residents. They have proved most effective during the whole of the past wet season, and even now (Nov. 4) are a sight to gladden the eyes. The compact kinds look best jammed in among pieces of stones, so as to destroy their stiff, geometrical appearance. The stragglers seem most at home drooping over a stone with a steep face, but anywhere and everywhere I can honestly recommend the *Lobelia* as a veritable first-class plant for rockwork. Many of the plants I used were seedlings, which varied very much; but then in rockwork variety is charming, and sameness to be avoided.—EDWIN JACKSON, *Llandegai*.

Tea Roses for Autumn Flowering.—Many have borne testimony to the fact that there has been a great wealth of Tea Roses this autumn. The Tea Rose is a fine autumn-blooming subject, and it can be managed so that there shall be no lack of flowers at any time. The plan adopted by Mr. S. J. Pavitt, of the Rose Cottage Nursery, Bathwick, Bath, is one that answers well. It may not lay claim to novelty, but it does greatly assist in the production of flowers at a time when they are most serviceable. Indeed, Mr. Pavitt asserts that while he can gather Roses for six months in the

year, any one with a little glass at their disposal can have Roses the whole of the year. Mr. Pavitt grows his Tea Roses on a border facing the east, which is protected by a belt of trees at the back, and forms a shelter from the westerly gales. He considers that it is wrong to plant Tea Roses on a south border, as in such a position, exposed as it is to the full power of the sun, the flowers get scorched up sometimes before they become fully expanded. When planted in an eastern border situated similarly to that in Mr. Pavitt's nursery, the plants get the morning sun only for a few hours, which is all they want in his opinion, and they are never exposed to the afternoon sun. This has an important bearing on the production of fine flowers and their preservation and continuity. The beds in which the Roses are planted are thoroughly trenched and prepared during the winter months, and in the month of May the plants, which are always worked on the seedling Brier, are put out into the prepared ground, and all the flowering buds are kept pinched off till the end of July, the result being that throughout the late summer and the autumn months, when the weather is favourable, there is quite a wonderful bloom. In case of very severe weather setting in and frost being imminent, a little common Fern stuck among the plants is found to give them all the protection necessary. Some thoroughly good autumn-flowering varieties of Tea Roses will be found in the following list:—Catherine Mermet, *Devoniensis*, Rubens, Madame Falcot, Madame Charles, Madame Camille, Madame Willermoz, Safrano, Isabella Sprunt, Goubault, and Mdle. Margottin. This list is not to be taken to the exclusion of other good sorts; it simply means that the varieties named have been found to answer well for the purpose. The provision of glass merely without the means of artificial heating will not do much in the way of the production of Roses during the winter. A Rose house is like a mine of wealth to a gardener, as according to the time when he commences to force will he reap—if the plants be well managed—an abundance of beautiful and useful flowers.—R. D.

Lobelia fulgens.—One of the most brilliant of flowering plants at this season is that fine hardy perennial, *Lobelia fulgens*. One rarely sees it in good condition, probably owing to the fact of its requirements not being sufficiently studied. It luxuriates, and will last in good condition for an indefinite period, in a free, porous, well-drained soil; but where the soil is naturally of a cold heavy description, the roots are liable to the attacks of a kind of canker. The plants succumb to the first period of inclement weather, and very often—much to the vexation and wonderment of the grower—altogether fail to show signs of growth the ensuing spring. The safest plan is, where any doubt exists upon the matter, to take the plants up as soon as they are done flowering, wash the roots, and lay them in in a free soil in a frame. They then immediately make fresh rootlets, and are thus ensured against decay. The situation chosen for planting should also be sheltered. No better place can be found than amongst evergreen shrubs, where there is plenty of light, air, and space for development. I recently saw a row of this *Lobelia* planted alternately with a bright variety of *Phlox* in front of a Laurel screen, the intense green of which admirably showed up the vivid glowing hues of these two flowering plants. The cold nights and damp days which we at this time of the year experience do not appear in the least to dim the beauty of this *Lobelia*, the flowers now produced being as fresh, highly-coloured, and well developed as those which expanded earlier in the season. Such plants as these which flower freely and brightly amongst the fogs and dark autumn days are very welcome, and are well deserving of some cultural care.—J. C., *Byfleet*.

An Improved Flower Pot.—Mr. Peter Henderson recommends in the *American Agriculturist* a flower pot with holes low down in the side instead of in the bottom. We have, he says, during the past six months tried about a thousand, of sizes ranging from 3 in. to 6 in. in diameter, and find they are all we expected of them. All cultivators know the difficulty experienced when the ordinary flower pot is placed on a bench covered with sand or soil—the outlet often becomes completely closed by the washing of the soil through the outlet, and, being closed by the sand, the drainage becomes stopped as completely as if there was no orifice at all in the bottom of the pot. Again, worms breed quickly in the sand or soil, and seem to take a special pleasure in crawling under and through the holes in the bottom of the pots, to get at the rich soil which they contain. This improved pot is safe from the first difficulty, as the holes, being on the sides of the pot, cannot be clogged by the sand; while it is far less tempting to the worm, as a special effort must be made before the hole can be reached. Still another advantage, and we think a very important one, is that as these orifices are placed above the bottom, air is admitted more freely to the roots, a matter which is very essential to the well-being of plants. I have but little doubt that if this style of flower pot can be as cheaply made, that it will quite throw the old style out of use.

NOTES OF THE WEEK.

The Cranberry Pippin.—This beautiful American Apple may now be seen in Covent Garden. It has a fine juicy flavour; in fact, as good as that of Newtown Pippins of ordinary quality. In "Downing" it is described as a beautiful Apple, but "second-rate in point of flavour, and an excellent cooking and market Apple"—a remark which suggests how good Apples must be where this is second-rate.

Crawfurdia speciosa.—This, one of the few of the twining species of Gentianaceous plants, is showing flowers at Kew, where it is trailing over some branches placed against one of the walls out-of-doors. Its flowers are said to be large and handsome, and no doubt they are if of the fine blue colour which prevails in the genus. The stems are slender, and the dark green leaves are somewhat heart-shaped in form and pointed. It inhabits high mountainous districts in Northern India, about Sikkim and elsewhere, and, therefore, may be expected to prove quite hardy in our climate.

Fuchsia dependens.—In one of the houses at Chiswick this rare and pretty species is now in flower. It is somewhat similar in habit to the better known *F. corymbiflora*, and, like it, bears pendulous clusters of flowers, which render it very showy when plentifully produced. The blossoms of *F. dependens* are about 2 in. long, with a narrow tube of a soft scarlet hue; this, with the petals, which are of a brighter tint, form an agreeable contrast. This, and several other species of a like habit of growth, are trained near the roof, a position in which they have a very graceful appearance. This species was found several years ago on the northern slope of Pinchincha, near Quito, by the late Dr. Jamieson, and was by him sent to this country.

Chamædorea glaucifolia.—This extremely graceful Palm is now an object of much attraction in the Aroid house at Kew, where it is producing several elegant drooping clusters of flowers. The leaves, which are long and arching, consist of long, narrow pinnae, which are disposed without any definite arrangement, and hang loosely from the midrib, and their glaucous hue considerably increases their effect. One objection to this Palm is that it attains a great height in a comparatively short space of time; thus its head of foliage is not seen to advantage, but when in a dwarf state few more elegant Palms could be found. Like most of its congeners it is a native of tropical South America, and is found plentifully in the region of Columbia.

Dyckia frigida.—A specimen of this handsome Bromeliad has for some time past been an ornament to the cooler portion of the Succulent house at Kew. It has a large, dense head of long, coarsely-toothed leaves, the surfaces of which are overlaid with a white, wool-like substance. From the centre of the tuft is produced a tall, branching flower-stem bearing a large number of deep orange-red flowers about $\frac{3}{4}$ in. long. Like many of its congeners it is a native of South Brazil. In the same house is a fine example of another Bromeliaceous plant (*Pitcairnia ferruginea*), a native of Peru, bearing a huge panicle of velvety-brown flowers.

Billbergia Moreli.—This Bromeliad is one of the most beautiful, as well as the showiest of all the cultivated Billbergias. It is now in great beauty in Messrs. Henderson's nursery at Maida Vale. The foliage, which is bright green, forms a fine contrast to the rich scarlet bracts which clothe the flower-spike. Its flowers are about 2 in. long, bright scarlet in the lower half, and rich purple at the tip, and they terminate the gracefully-drooping spike. Another handsome species, also very attractive just now, is *B. thyrsoidea*, which has similar scarlet bracts on the spike, but which is quite erect, and the flowers are longer and lack the purple tips of those in the other kind. The above are both natives of Brazil. There are several other beautiful Bromeliaceous plants also in flower in the same house, such as *Vriesia speciosa*, with a brilliant scarlet flower-spike 2 ft. long, and yellow blossoms, which are admirably set off by the singular zebra-striped foliage. The sight of these exotics at once suggests the enquiry as to why their culture is so much neglected in gardens generally, seeing that many of them rival, if not surpass, in brilliancy of hues the choicest of Orchids.

Autumn Flowering Crocuses.—The display of these at Kew this season has been moderate, owing no doubt to the frequent transplanting to which they have been subjected, and which is evidently highly detrimental to their well-being. There are, however, several pretty species in flower, comprising, besides the well-known *C. speciosus*, *C. nudiflorus*, *C. byzantinus*, *C. pulchellus*, *C. medius*, *C. Clusii*, &c., such rarely-met-with kinds as *C. Kotschyanus*, a beautiful species from Asia Minor, with flowers having the same pale lilac tint and white anthers as *C. pulchellus*, but much larger, and, in addition, a conspicuous ring of yellow at the inner base of the flower, from which character its synonym, *C. zonatus*, was given. The rare *C. hadriaticus* is also in flower; its blossoms are white

with faint dashes of a slaty tinge on the outer base. *C. Salzmanni*, which is considered by some to be a variety of *C. serotinus*, is one of the most desirable, as it possesses the character of producing flowers and foliage at the same time; thus the naked appearance which the other kinds have is obviated. One of Mr. Maw's late introductions is likewise in flower. The label denotes that it has not before been introduced, and, judging from the appearance of the partially withered flowers, it will be an acquisition, as they are large and bright in colour.

Crassula alpestris.—On the rockery at Chiswick this new succulent plant is still in flower, having first expanded several months ago. It is a very pretty neat-habited kind with slender trailing stems, which earlier in the season, are bright red, and are terminated by a cluster about 1 in. across of small waxy-white blossoms, the stamens of which are red, thus affording a pleasing contrast to the flowers. It is presumably quite hardy, though none of the other species are. It is a native of the Cape of Good Hope, and was first received at Kew about a year ago from Mr. Max Leichtlin, of Baden-Baden, under the name of *Sedum alpestre*.

Parrotia persica.—Foremost as regards autumnal-tinted beauty is this rare Persian tree, which against walls, and even planted as isolated specimens on the lawns at Kew, is now highly attractive. Few trees possess decaying leaves so richly tinted as these, varying, as they do, from a bright golden hue to the deepest crimson. In habit and general appearance it reminds one of a Beech tree, but it belongs to a widely different family. Its flowers are inconspicuous, and rarely produced in this country; but it is well worth a place anywhere for its autumn-tinted leaves alone. It is scarce in gardens, a circumstance doubtless owing to the difficulty of its propagation. The Liquidambers, too, are very conspicuous at Kew, though much less so than we have seen them in other seasons.

Catleya labiata.—The true old variety of this plant is now bearing eight large and richly coloured flowers on two stout spikes in the Trinity College Gardens, Dublin. *Odontoglossum grande*, the snow-white *Pilumna fragrans*, and a healthy specimen of *Seden's* rosy-flowered Lady's Slipper (*Cypripedium Sedeni*)—one of the best of the hybrid varieties—are also now very effective at the same place.

Geonoma Seemanni.—This Palm, though at all times handsome, is most attractive when bearing a number of its singularly forked clusters of flower-spikes, which are produced from the axils of the broad arching leaves. We saw it in this condition a few days ago in Mr. Williams' nursery at Holloway, where there is a fine specimen of it from 6 ft. to 7 ft. in height.

Tyerman's Groundsel.—A good specimen of this plant nearly 3 ft. high, and in vigorous health, is now bearing a dozen fully expanded flowers and many buds in a border in the Trinity College Botanical Gardens, Dublin. Each individual flower is 3 in. across, of a bright magenta purple, with a conspicuous golden disk. Bees are very fond of resting on the flowers for the sake of the nectar or pollen supply which they afford. Well developed specimens of this plant are very showy in the flower garden at this late season, and until very recently the white flowered *Pyrethrum uliginosum* has borne them company. A quantity of this *Senecio* grown on a warm sheltered border would be very useful for indoor or for cool conservatory decoration if carefully lifted, and potted as soon as the flower buds appeared. In this way the plants might possibly ripen seed, which they rarely have a chance of doing in the open border. Few plants are more easily increased. Cuttings of the roots, 1 in. long, sown like seeds in a pan of light sandy earth, soon develop buds in a cool frame or on a shelf in the greenhouse.—W.

THE INDOOR GARDEN.

COOL SYSTEM OF FLOWERING BOUVARDIAS.

I WAS, I believe, the first to point out in THE GARDEN that the Bouvardia could be grown as successfully, or perhaps better, under cool treatment than in heat, though probably others had adopted the system as soon as myself. The correspondence in THE GARDEN now shows that the cool system is finding most favour, and the advocates of warm treatment are not likely to arrest progress in that direction, unless they have something more than assertions to offer in support of their views. It is stated (p. 390) that Bouvardias "bloom after a fashion" under cool treatment. If this means that they cannot be so grown quite as successfully, to say the least, as by the system recommended about two years ago in the "Gardeners' Assistant," then I venture to say that the author of the above assertion never saw a really good cool-grown Bouvardia, and does not know what can be accomplished by such treatment.

In the book above mentioned cuttings are recommended to be struck in April, and after they are potted to be kept in a night temperature of 70°, with a rise of 10° by day. This practice is to be continued "till the end of July," when the plants are to be removed to a cool frame, where they are to remain till the middle of September (a time at which they are flowering out-of-doors here); but "if flowers are required through the autumn, a portion of the plants should at once be placed in a temperature of 68° or 70° at night, with a few degrees higher in the day time." If this is not stove treatment, pure and simple, I do not know what it can be called. Is Mr. Baines prepared to name a single market grower who prepares his Bouvardias for the stalls in Covent Garden in this way in winter? In THE GARDEN last year one nurseryman was named who grew several thousands for market on the cool system, and no doubt plenty of others follow his example. The market gardener is not the man to buy coals in London to grow Bouvardias in heat all the year round, when he can do without them. From Mr. Baines' admission last week that he only now recommends heat for those plants to bloom "during the two last months of the year," I take it that he has abandoned the ideas which he expressed in the "Gardeners' Assistant," and that being so, he can well afford to abandon the rest. The assertion that cool-grown plants produce flowers deficient in colour, or that are unsalable in the market, is disproved by facts. The finest plants and flowers I ever saw anywhere, including Covent Garden, were grown in front of a Beech hedge during the summer at Hands-worth, and were at their best in Christmas week of the same year.

J. S. W.

Fuchsia boliviana.—When looking through the large collection of Fuchsias at Swanley the other day, I was much impressed with the fine appearance of this species. It has large handsome foliage, and is of a very vigorous, but at the same time compact, branching habit, producing an abundance of richly-coloured flowers, some 3 in. in length. It is a highly ornamental and very distinct kind, well worth the attention of lovers of this family of flowering plants. Large specimens of it would undoubtedly prove very effective for conservatory decoration.—J. C., *Byfleet*.

The Last New Australian Palm (*Areca Alice*) has been dedicated by Baron Mueller, in the *Gartenflora*, to the memory of the late Princess Alice, Grand Duchess of Hesse. It was discovered by the indefatigable Mr. Walter Hill in north-east Australia, about ten miles north of Trinity Bay, and transferred by him to the Brisbane Botanic Garden, where it has flowered and fruited. This new Palm will prove a welcome addition to our limited number of species suitable for small houses, inasmuch as it grows only about 10 ft. high, and throws up several stems from the same root. The pinately divided leaves are about 5 ft. long, and the slender stems 1 in. to 2 in. thick. *Areca Alice* is allied to *A. oxycarpa*, a native of the Celebes, and *A. triandra*, of the Malay Peninsula, Java, and neighbouring islands. We are not aware that this Palm has yet been introduced into European gardens; but if it has not, it doubtless soon will be, now that it has fruited under cultivation.—*Florist*.

Myosotis dissitiflora for Winter Flowering.—This is very much appreciated here during the dark days of winter, and as it can be had by any one possessing an ordinary greenhouse, it is to be regretted that it is not oftener seen than it is. To get up a stock of plants for this purpose, it is only necessary to pull the requisite number of pieces off old plants, and insert them in ordinary soil on a shady border about the beginning of August. Seeds sown about the end of June will furnish plants equally suitable. Cuttings strike root without any particular care, and if put in at the time and in the manner indicated, will become plants ready for potting off about the beginning of October. We use 4½-in. and 5-in. pots, and in potting, take any potting soil handy. When lifted with good balls, they never know that they have been moved. After they have stood in the shade for a day or two, we place them in an ordinary frame on a dry site, and here they are treated to all the air they can get in all weather, lights only being used for the purpose of keeping off heavy rains. As they root rapidly the pots soon fill with them, and care is taken to prevent them flagging from want of water; otherwise they are kept as dry as possible, and this tends to make them free-flowering. In ordinary mild winters they will bloom in the frames, and in any case are sure to do so very early in spring. To have Forget-me-nots all winter is, however, the easiest task imaginable, and all that is wanted in the way of forcing is to bring in a few pots at a time into any house kept at greenhouse temperature, when they will throw up their trusses in a week or two, and continue blooming for a long time.—"The Gardener."

Alpine Flowers for English Gardens.—Mr. Murray has published a third and cheaper edition of this book. In printing, illustrations, &c., it is in all respects as good as the previous one. The price of the new edition is 7s. 6d.

PLATE CCV.

BLETIA HYACINTHINA.

Drawn by CONSTANCE PIERREPONT.

ANY addition to the list of beautiful exotics which may be treated as hardy plants in our climate must be considered a welcome acquisition. The plant of which we give an illustration this week is an Orchid that has for many years been grown under glass as a tender plant, and it is only recently that any account of its hardiness has reached us. Mr. A. E. Barnaart, of Haarlem, brought a plant of it in flower to THE GARDEN Office a few months ago, from his nursery, that had proved hardy with him several years, and from this plant our plate was prepared. Since then we have had corroborative evidence of its hardiness from various sources, and we saw some plants of it the other day in Mr. G. F. Wilson's wild garden near Weybridge. This had been planted out for some considerable time, and was in most vigorous health—in fact, more robust than plants grown under glass generally are. Mr. Wilson's plants are growing in the soil natural to the place, which is a deep moist mass of decayed vegetable mould, which doubtless has been accumulating there for ages. As to its beauty when in flower a glance at the accompanying plate is sufficient proof. The shade of colour, however, is somewhat darker than that seen in the typical specimens, thereby justifying the varietal name which was appended to the plant received from our Dutch correspondent, which was *B. japonica purpurea*. As *B. japonica* is but a garden name for *B. hyacinthina*, the latter name must have precedence. It is a native of China, and like many other plants of that country, has doubtless been sent from the neighbouring country, Japan, which probably has given origin to the name *B. japonica*.

W. G.

Alpine Plants and Rockeries.—From Mr. Williams' remarks (p. 370) in reference to this subject, one would be led to infer that in my note (p. 344) in connection with the rockery at York, I had endeavoured to convey the idea that the culture of Alpine plants is beset with difficulties both imaginary and real, and that such subjects cannot be grown successfully except upon such elaborate and extensive structures as the rockery in question. By turning to my remarks, however, he will see that I stated that it would be impracticable in the majority of instances to imitate the York rockery as regards extent, but that the *principle* of construction was identical both in large and small rockeries, and that Mr. Backhouse's rockery might be profitably studied as an example of the correct way in adjusting the material used in its construction and the disposition of the plants. That there is a good deal of unnecessary "fuss" made about growing Alpine plants cannot be denied; but why is that the case? simply because in nine cases out of ten they are not placed at first under the necessary conditions for ultimate success. The plants thus circumstanced drag out a miserable existence, and so are considered unmanageable, the result being that any renewed attempt at Alpine plant culture in such cases is abandoned. Unfortunately the prevailing idea of a rockery is a mass of stones or other material so arranged that it has a more or less rustic appearance, and what should be the primary consideration is in most cases ignored—which is to afford a moist medium for the roots in dry weather, and drainage and a dry surface in winter. That a large number of Alpine plants may be grown well without any rockery at all is a well-known fact, if the term Alpine is understood in its widest meaning; but by far the largest number, and these comprise some of the most beautiful, of what are generally termed Alpines, are not only benefited by being grown on well-constructed rockwork, but will absolutely refuse to thrive satisfactorily if grown in an ordinary border. Besides, there are other disadvantages attending this plan of growing them; for instance, being so dwarf it is necessary, in order to inspect them conveniently and thereby form an adequate idea of their beauty, to either stoop considerably or fall on one's hands and knees; whereas, when placed on raised rockwork they are brought more on a level with the eye, and are thus more conveniently seen. Other disadvantages are, that they are apt to become over-run by larger-growing subjects, or if these are not grown along with them the beds present monotonous flatness throughout the year; and, moreover, they are in this position an easier prey to slugs, &c. I should be sorry, indeed, if my description of the York rockery was in any way calculated to cause persons to abandon any attempt at the growth of Alpines for ever as Mr. Williams puts it; but I think there is little to fear in this respect, or the trade in these plants would not be so extensive as it now is, and it seems to me greatly to the increase, thereby showing that the taste for Alpine plant-growing is becoming year by year more popular instead of less so.—WILLIAM GOLDRING.



GARDENING FOR THE WEEK.

Greenhouse.

Azaleas.—The length of time during which these plants may be had in flower has induced many growers to vary their treatment so as to, if not have them in for the full period possible, so regulate their flowering as to very much prolong their season, instead of the course which used to be pursued of letting them come in in a great measure through the influence of sun heat during April and May. Such plants as were purposely retarded to bloom late should now have completed their growth and formed flower-buds; but in many places, through an absence of sun, the growth has been so late and backward that the buds are far from possessing that character which it is desirable they should do; but it is now too late to remedy the evil, and I simply allude to the matter in order to recommend those who find their plants in this condition to take note, so as to avoid a like state for the time to come when such summers as this occur; for so manageable are these plants, that wherever there is a deficiency of sun to bring on the growth of the late blooming portion of the stock, and get it properly matured and ripened up before the autumn is too far advanced, this can always be remedied by the use of fire-heat. Unless this essential condition in the season's growth is present, it is useless to look for large, fully developed flowers, although the plants may produce a sufficient number; through this cause it frequently happens that in the coldest, least sunny districts in the north of the kingdom, where Azaleas will rarely succeed as they ought to do without some fire-heat during the summer, a knowledge of this necessity often results in their being better managed than in the more favoured south. Plants that have been hitherto the earliest forced should at once be put into heat, but in no case ought they to be hurried by submitting them to too much warmth, or allowed to stand far from the glass overcrowded with other plants, or under any influence that subjects them to an insufficiency of light, as either of these has a direct tendency to shorten the duration of the flowers.

Winter-flowering Heaths.—Where a sufficient stock of the different varieties of these exists, they play an important part in conservatory decoration for some months during the dull season. We often hear complaints made by those who annually buy in a stock of these winter-blooming Heaths, that they are very liable to die off towards spring; this may in some measure be due to the treatment they have received at the hands of the growers with a view to give the plants a vigorous, luxuriant appearance; but it also is often caused by their being submitted to usage that no members of the Heath family would bear, that is, being crowded together amongst other plants, where they labour under a deficiency of air and light, two elements of greater importance to Heaths in general than to most other families of plants. Neither can they bear keeping too warm, and where greenhouses are kept through the winter—as with many—at a temperature of 45° in the night, Heaths of the above description are sure to suffer unless they are all but touching the glass in the lightest pits or houses it is possible to erect. The luxuriant, profusely flowered condition that well managed plants of this character have when sent out by those who grow them largely for sale, is simply the result of two or three years' high and careful cultivation; the balls of earth the pots contain are complete masses of densely packed roots that, if ever allowed to suffer from want of water, are sure to be so affected as to cause their almost certain destruction. This points to the necessity for continued watchfulness as to their requirements for water, and where there is an inclination to do anything with them beyond simply flowering and then discarding them, as is generally done with Hyacinths, constant attention to their wants is indispensable. The more than usual soft condition of the foliage, which has been formed during an all but continuance of dull weather, will make them more than ordinarily subject to mildew, which if only once existent spreads apace. The stock should be looked over every ten days, and where the slightest trace of this parasite can be found the plant should be dusted with flowers of sulphur or syringed with water impregnated with sulphur; where either are used it is necessary to be particularly careful that neither the sulphur nor the water in which it is held in solution gets to the roots.

Lachenalias.—There exist many more varieties of these than are generally known, the flowers of which range from white, rose, orange, red, and yellow, to the colours of the well-known *L. tricolor*, with its combination of red, yellow, and green. Where a sufficient number of plants are grown they may be had in flower over a lengthened period by forcing some, allowing others to come on in an ordinary greenhouse, and retarding another portion in cold frames, with just as much protection through the winter as will keep them from being frozen during hard weather; for though nearly hardy it is better not to let the frost reach them. I have found the following varieties very useful, viz., *L. fragrans*, the flowers of which are

red and white, sweet-scented; *L. pustulata* violacea, violet; *L. quadricolor*, orange, red, and yellow; *L. tigrina*, white; *L. tricolor*, one of the freest bloomers, coming in early; *L. pendula*, red, tipped with yellow and green; this with me grew stronger than most of the others. There are several more, but these fairly represent the family.

Chrysanthemums.—These, where not already indoors, or under protection of some kind, should at once be got in. Now, when the buds are considerably developed, the plants collectively are less liable to receive injury, even when put with ordinary greenhouse stock, than when only just about formed. Wherever they are placed give them as much air as can be admitted with a due regard to the other plants associated with them. Where some of the latest-flowering kinds are grown with a view to keeping them back as late as possible, there will be no difficulty in doing so where there is a house with a north aspect with a full volume of air night and day, except where there is an appearance of frost. These will not open their flowers before the latter part of December, when, if the buds are well thinned, and all suckers kept removed from the base of the plants, they will be alike useful for general decoration and cutting.

Eurya latifolia variegata.—There is not a greenhouse in the country, large or small, into which this plant might not be introduced with advantage. Its handsome leaves—about the size of those of an Orange—are richly variegated with creamy white. It is a good grower, and has an equally pleasing appearance in a small and in a large state. Though nearly hardy on a wall in the south of the kingdom, it seems most at home as a greenhouse plant. It is now cheap enough, and is easily propagated; points of the shoots of this summer's growth taken off now with three or four joints, and placed in a cold pit or house covered with bell-glasses and kept moist, will have their base well callused over in the course of three months, when, if put into a little heat, they will root immediately; they can then in the spring be potted off and grown on. They will do duty in greenhouses and conservatories, in no way inferior to that which the Crotons do in the stove.

Euonymuses.—Although these are quite hardy in most parts of the country, and the majority of them ultimately grow to a large size, they are amongst the most useful plants for pot culture that can be grown, especially the variegated kinds; the ease with which they can be propagated and grown admits of their being used in quantity for decorative purposes in halls, porches, verandahs, and window-boxes for the winter, in all of which positions their bright, handsome foliage almost supplies the place of flowers. Cuttings taken off now made of the young shoots and inserted thickly in pots plunged in ashes and kept in cold frames through the winter, just protected from frost, will root in the spring with or without artificial warmth, but if assisted with a slight hot-bed then it will much help the season's growth. When well rooted they should be planted out in rows in well prepared free soil in a light situation, in which, by the end of the second summer, they will have made good bushy plants ready for potting off. Any of the erect-growing variegated forms are suitable for the uses here recommended.

Shrubs for Forcing.—These, which may now be taken up, should include Rhododendrons, selecting for the purpose the early blooming kinds; many Rhododendrons naturally bloom too soon in the season to admit of their having a reasonable chance of escaping frost in the open air, and on this account numbers of sorts which have this habit have been discarded; whereas, if they had been grown extensively for pot culture, they would have supplied, with glass protection only through the later portion of winter and spring, flowers for conservatory decoration of a most useful character. Where large quantities of blooming plants are needed few things would be more effective or economical, and if a piece of reserve ground was devoted to them, so as to admit of their propagation in sufficient numbers, and in which the plants that have bloomed could be turned out after flowering, this would allow each year those being used best furnished with flower-buds. Quite equal to the above class of Rhododendrons are the Japanese varieties of *Azalea mollis*, which are great improvements in size and substance on the Ghent sorts; they, too, turn out to be better adapted for using as pot plants in this way than for blooming out-of-doors, as, except in the most favoured localities, they have a disposition to flower before danger from spring frosts is over. The hardy *Azalea* (*A. amona*) and the Ghent varieties are excellent forcers. *Kalmia latifolia*, *Laurus tinus*, the double-flowered *Prunus*, *Deutzia gracilis*, *Lilacs*, and the Guelder Rose all answer well for this purpose, and are very serviceable in helping the supply of ordinary greenhouse plants. They are especially to be recommended where the means at command in the shape of houses and pits solely devoted to plant-growing is insufficient to keep up the requisite supply, as in many places during the winter season there are mid-season and late Vineries and Peach-houses, where such plants can be placed out of the reach of frost and snow, and where they will be slightly

encouraged to come on into bloom, and be in a better condition for introducing to the forcing-house than if left out in the open air.—T. BAINES.

Flower Garden.

Carnations and Picotees.—See that all newly-potted plants are kept moist at the roots as soon as new rootlets are formed, and the frame light should be rather more tilted as the plants seem to become established. In a fortnight or so after potting, the lights, when the weather is fine, may be removed altogether. I always fumigate the plants after they are established, as a preventive of green fly. There are several methods of fumigating low frames, but the plan which we practise here is the simplest which I have yet tried. A square hole is dug in the ground, half of it under and half of it outside the frame, and deep enough to hold the fumigator. The latter is merely a cylinder made of sheet iron, with a grating at bottom; it is about 7 in. wide and 1 ft. deep. Some burning coal or coke from a neighbouring furnace is placed in the bottom, and over it is laid the Tobacco or Tobacco-paper. The apparatus thus arranged is dropped into the outside hole, and pushed quite under the frame. When the latter is sufficiently filled, the fumigator is pulled out, and a sack or mat is placed over the hole. I much prefer destroying the fly after it does appear by fumigating; but in the case of a small number of plants they may be dipped in soft-soapy water sufficiently strong to kill it.

Dahlias.—We have not yet taken the roots up, although 4° of frost have quite blackened the leaves and spoiled the flowers. We will allow them to remain until the weather shows signs of breaking. At present it is cold, but no signs of frost or rain have presented themselves since the Dahlias were killed on the evening of October 25. There is no difficulty with us in getting the roots dried, as they can be taken into any of the Vineries from which the Grapes have been cut. The roots while in the ground will still continue to mature, as the leaves are not all blackened; some are even yet quite green, and the stems are sound. While the weather is still favourable, the ground should be prepared for next year. Even if the soil is rich it will not do to trust to only digging it over. It will be necessary to trench it 2 ft. deep or more, working into it plenty of good manure. The best for this purpose is to obtain, if possible, equal quantities from the cow-sheds and stables; throw the two up into a heap, mixing them well; turn them over twice at intervals of a week, and in a month it is ready for use. A word here on trenching: Workmen may frequently be seen trenching a piece of ground that has been trodden hard; they throw the lumps of soil just as they move them into the bottom of the trench. Where the soil is heavy this is very bad management, and such a loose style of trenching is to be deprecated under any circumstances. Choose a fine day, when the soil is rather dry, to fork the surface over, breaking up the lumps well. In a week or ten days after this has been done the ground may be trenched. Thus treated, a loose dry soil will be placed in the bottom instead of hard lumps, which, even if they are broken up as thrown in, have not been submitted to the ameliorating effects of the atmosphere.

Gladioli.—We lifted our roots of these immediately after the first occurrence of frost, as the flowers were quite useless for this season. The corms are certainly in very bad condition, being small and unripened. Such as they are they have been laid out as usual on the floor in one of the Vineries to dry. The ground for next year ought now to be trenched, according to the plan laid down in THE GARDEN (p. 374); in fact, I like the soil to be exposed for Gladioli as early as September, and if the place where they are to be planted next year can be trenched at that time, and the surface be frequently forked over, so much the better. Seedlings that have been grown in pots all the summer should now be turned out of them. The small bulbs should be carefully picked out from amongst the soil; they may then be put into paper bags amongst a little dry sand.

Phloxes, Delphiniums, Pyrethrums, &c.—These have now assumed the sere and yellow leaf. The stems must all be cut over close to the ground. Stir the surface soil well up, and keep the beds and borders free from weeds.

Tulips.—If the soil is in good condition these should be planted next week. It is always best to have some good fibrous loam under cover to place on the surface of the beds; this should be free from manure, but the soil should be rather rich underneath. An old author says, "The Tulip asketh a rich soil, and the careful hand of the gardener." When the beds are ready begin to plant at once, making a hole with a small trowel, and putting in a little fine dry sand, then the bulb, and over it a little more sand; then cover all with loam to the depth of 2 in.

Hardy Cyripediums.—These are now, to all appearance, at rest, but on examination it will be found that the roots are growing, and that the stem for next season is in an incipient state. Now

is the time to repot them. I shake all the soil from the roots, fill clean pots half-full of potsherds, and then repot in equal portions of fibrous loam and fibrous peat, mixing some bits of charcoal amongst it. Plant a little Sphagnum on the surface, and if this is just kept in a growing state during winter that will afford sufficient moisture.—J. DOUGLAS.

Indoor Fruit.

Vines.—Late-planted young Vines that have grown vigorously, as they generally do, will still require artificial warmth in combination with free ventilation, in order to ensure thorough ripeness of wood. Even in the best of seasons, it is sometimes difficult to get such Vines to ripen, and as the present one has been all but sunless, it will at once be seen how necessary a continuation of artificial warmth is. Such Vines may now have the growth that was allowed to run, to induce greater root-action, cut off; but in its removal carefully guard against injury to the foliage on the main stem, that being an important factor in the plumping up of the fruit-buds. Late Grapes, particularly Lady Downes, will still be the better for having the temperature kept up to about 65°, and the surplus growth on these should also now be removed, as light and air are essential as regards the good preservation of the fruit so long as it remains on the Vines. Grapes that have been ripe for some time, and which are keeping but indifferently on the Vines, through the surroundings being damp, ought to be cut and placed in bottles, as recommended in THE GARDEN (p. 374). In the case of Grapes that are to be ripe in April, or early in May, the Vines will at once require to be started. "Slow and sure" should be the motto, so for the present be content with keeping the house closed without applying fire-heat. Prior to starting, see that the inside borders are well moistened through with water at a temperature of 80° or 90°, and outside borders should have a thick covering of litter or bracken put on them to exclude frost, and shutters or tarpaulin to throw off wet. If, as is in many instances the case, the earliest Grapes are had from pot Vines, these too should be now started, and, though bottom-heat is not essential, a slight warmth, such as that produced by 2 ft. or 3 ft. in thickness of Oak leaves, will assist the earlier starting of the Vines; and even if allowed to root into the leaves, as they will do as the heat declines, such rooting is beneficial.

Figs.—The earliest trees in pots should now be got in readiness for starting in gentle warmth. There will probably this season be few trees in a fit condition for this yet, and so long as a doubt exists in the matter it will be advisable to give the trees the benefit of it; for though later in starting, ultimately those that have had the longest rest will win the race both as to time and results. Planted-out trees will now have lost their foliage, and should therefore be untied from the trellis; all naked and unnecessary wood should be cut out, and if insects have been troublesome, the trees should be well washed with soapy water and afterwards painted over either with a mixture of Gishurst Compound (4 oz. to the gallon of water), or with a strong solution of soft soap, sulphur, and Tobacco water. We have been much troubled with a small white scale, but last season we managed to eradicate it by thus cleansing the trees. If such an operation be thought necessary, now is the best time to check growth by root-pruning. All Figs do best in a contracted root space, and in that case root-pruning is rarely necessary after the first or second season of planting. The soil in which the Fig delights is a calcareous loam of moderate texture, with the addition of charcoal, lime scraps, and $\frac{1}{2}$ -in. bones. As soon as the trees have been cleansed, let the borders be top-dressed with the compost just named, of course having previously removed the old mulching and inert surface soil. The house should then be kept as cool as possible so long as frost is excluded, as the admission of this would prove injurious to the embryo fruit.

Peaches and Nectarines.—Early houses should still have full ventilation during the day, but they should be closed at night, for the buds are now so prominent that frost would prove injurious to them. As soon as the leaves are off the trees in succession houses unfasten them from the trellis, thin out the most naked shoots, and wash the trees with soapy water as a preventive against insects, or, if they have been infested with any during the past season, paint every tree entirely over with a strong soft soap lather, to which should be added a moderate proportion of sulphur and clay to thicken it. Gishurst is an excellent insecticide for such a dressing, the only danger lies in its being used too strong. If this be used, 4 oz. to the gallon of water should never be exceeded. The inexperienced would be safest to use only soft soap, the strongest solution of which does not harm the buds. All the glass and woodwork should be well scrubbed, and the walls lime-washed, both to destroy insects and make the house as light as possible. When retying the trees to the trellis, avoid laying them in too thickly; there should be at least 4 in. clear space between each shoot. Overcrowding the trellis with wood is a very common error, and difficult to overcome, as

whilst the trees are leafless we are apt to think that shoots tied in at that distance apart look very thin. The foliage in late houses, being ready to fall, should be assisted by a good shake of the trellis, or a gentle sweep upwards with a soft broom, and as soon as all the leaves are down, top-dress and root-prune after the manner recommended in previous notes in reference to early houses.—W. W.

Kitchen Garden.

In the majority of gardens work that could not be put off, such as root storing and the planting of crops, will now be completed, and attention can, therefore, be given to getting all vacant ground either dug, ridged, or trenched as the case may be. There is a general agreement amongst gardeners respecting the value of deep tilth for every variety of soil and crop, and it is only the question of insufficient labour in most gardens that hinders the practice of trenching from becoming more general and more frequently done. Soils vary so much, for whilst some are benefited by annual trenchings, others prove more productive if trenched only at intervals of two or three years. As a general rule, all kinds of light soils will pay for trenching annually, and the extra labour expended in doing it is saved by freedom from weeds in summer, and the ease with which the crops can be sown, hoed, earthed, &c. The trenching of heavy soils is a more formidable matter, but, as a set-off to this, it is not so frequently necessary. When it is done there should always be worked in with it a large amount of cinder ashes, lime scraps, or any material likely to render it more open and porous. Clayey soils are much improved by the addition of burnt soil, and whenever there is likely to be any fallow, advantage should be taken of it to burn a portion, which is easily done by collecting on the ground a heap of brushwood, hedge clippings, or a few faggots, in fact, anything that will create a body of fire wherewith to start the soil. Burnt earth for all adhesive soils is simply invaluable. The present is also as suitable—and, as there is no work particularly pressing just now, perhaps as convenient—a time as any during the whole year for clearing up soil-yards, rubbish heaps, and vegetable refuse of every description, all of which gives profitable employment for frosty mornings. Take advantage of dry weather to finally earth up Celery, and bracken or long litter should be in readiness for protection; for if severe frost sets in it will soon be seriously injured, as, like all other vegetable crops this season, there is a want of solidity and ripeness through lack of sunshine. Cauli-flowers and the earliest Broccoli will need to be examined daily for the purpose of bending the leaves over the foliage to prevent injury from frost. Surplus heads can be retarded both by partial lifting (a gentle heave with a fork), or by entirely removing them to a cold shed. Cauliflower plants that are to be wintered in frames or hand-lights must still have the fullest exposure to the weather; the lights should only be put on when sharp frost appears certain. Slugs may be kept from injuring them by an occasional dusting with fresh lime, wood ashes, or soil. Lettuces, Endive, and other saladings intended for winter use will now all need partial protection, such as that afforded by cold pits, orchard houses, or hand-lights. Forcing operations must now begin in earnest; Asparagus, Seakale, and Rhubarb will now force freely, but they will doubtless require more time than usual, seeing that the roots were so late in maturing their growth. Herbs of all kinds usually asked for in winter can be had by planting a few roots in pots, and placing them in any house having a minimum temperature of 45°.—W. W.

Extracts from my Diary.—November 10 to 15.

FLOWERS.—Cutting back and placing Pelargoniums thickly in boxes. Staking Poinsettias. Looking over first batch of bulbs in ashes outside, and placing the most forward in frames. Placing Deutzias and Dielytras in gentle heat to start them. Placing Spiræas, Prunuses, and Violets in heat.

FRUIT.—Preparing place for banking Strawberries for the winter. Tying Raspberry canes. Painting Peach trees, and keeping first house close in order to start it. Packing Apples in boxes, wrapping each fruit separately in paper, and placing the boxes in a cellar to keep the fruit till May. Tying Peaches in early house. Looking over late Vines and cutting out superfluous wood to admit light. Placing first batch of Strawberries in cold frames on a south border for early forcing.

VEGETABLES.—Sowing on south border William the First, Omar Pasha (Gilbert's), Ringleader, and Laxton's Unique Peas, dressing them with red lead previous to sowing. Tying and thinning Tomatoes growing in Pine stoves. Manuring ground and turning it up rough to lie fallow during the winter. Potting Osborn's French Beans, and erecting a stage for them in Pine stove. Preparing pit for Asparagus. Soiling Mushroom bed in house, and turning manure ready for more beds. Tying and thinning winter Cucumbers. Strewing Lettuces and Endive with a slight covering of Fern for protection from frost. Covering up heaps of Carrots, Beet, and Turnips. Get-

ting Asparagus into frames for forcing, and covering them up with Fern to start it. Placing pots over first bed of Seakale.—R. G., *Barghley*.

TREES, SHRUBS, AND WOODLANDS.

THE CISTUSES OR ROCK ROSES.

Of the long list of species which compose this genus of beautiful flowering evergreen shrubs, comparatively few have been found sufficiently hardy for open-air cultivation in Britain, and even these require the shelter of a wall to enable them to survive the rigours of our ordinary winters. The great bulk of the sorts are indigenous to the south of Europe, where they are widely distributed; but a few are found in Northern Asia, and on the African shores of the Mediterranean. Most of the species are of free growth in ordinary soils, preferring such as are light and well drained. They are all more or less remarkable for the fugaciousness of their flowers, the corollas in most cases expanding in the morning and falling off at sunset. As others, however, come on in rapid succession and in great abundance, the plants maintain their gay appearance for five or six weeks in summer. This peculiarity is thus prettily alluded to by one of the poets, who says:—

"Yet though the gauzy bells fall fast,
Long ere appears the evening crescent,
Another bloom succeeds the last,
As lovely and as evanescent."

A resinous gum, which exudes from the leaves and young branches of most of the species, notably from those of *C. ladaniferus*, and known in commerce by the name of "labdanum," has a pleasant aromatic fragrance, and is used medicinally in a variety of ways, particularly in plasters, and by perfumers in the preparation of cosmetics. This substance is said to have formerly been gathered from the beards of the "goats, whereon it collected while they browsed on the plants." It is now, however, collected by a leather comb drawn over the branches, to the teeth of which the juice readily adheres, forming an ever-thickening crust, and is easily scraped off with a knife.

The Gum Cistus (*C. ladaniferus*).—This is an evergreen shrub, of about 5 ft. in height, indigenous to Spain and Portugal in mountainous districts. It has been cultivated in our gardens since 1629. The leaves are oblong-lanceolate, smooth, dark green on the upper surface, and slightly hoary below. The flowers are white, with a dark brownish or crimson spot at the base of each petal, appearing in wonderful profusion in June and July. This is one of the most valuable of our wall shrubs, hardy, and of robust growth in any situation where the soil is dry and moderately rich, and, like all its congeners, remarkably patient under the pruning knife. As it flowers, however, from the shoots of the previous year, care should always be taken to thin the branches, rather than indiscriminately cut off all the young wood. The so-called species, *Cyprius*, or *Island of Cyprus Cistus*, differs only from this in its flowers being destitute of the beautiful blotch, so attractive in those of the *Gum Cistus*, and is probably only a variety. It is interesting, however, as a companion plant in collections of wall shrubs.

The Laurel-leaved Cistus (*C. laurifolius*).—A robust evergreen shrub, found naturally over a wide area in Spain and the south of France, where it grows to the height of about 6 ft. It was introduced to our gardens about 1771. The leaves are large, of an ovate-lanceolate form, thick and leathery in texture, smooth dark green above, and covered on the under surface with a minute down. The flowers, which appear in July and August, are pure white, clothed with prominent red bracts, which are very ornamental just before the flowers expand. This is a very free growing species, one of the hardest in cultivation, and very desirable for covering walls. It stands, however, in many districts as a specimen shrub in the open border, when planted in light, well-drained soil.

The Purple-flowered Cistus (*C. purpureus*).—This is a species introduced from the Levant as early as 1659. It is a sub-evergreen, with an erect, bushy habit of growth, from 3 ft. to 4 ft. in height. The leaves are oblong-lanceolate, prominently veined, undulated at the margins, and of a dark green colour. The flowers, which are produced in June and July in great abundance, are reddish-purple, with a bright yellow spot at the base of each petal. The petals are imbricated and crumpled. The young branches are covered with a minute pubescence. Though somewhat tender, even on a sheltered wall, this species deserves a trial in any favourable situation, the abundance and brilliancy of its flowers, and its neat, distinct foliage, rendering it quite a feature in a collection of dwarf wall plants. A dry, well-drained soil is essential to its well-being, and a slight covering during the severest of the winter will, in most cases, save it from damage.

The Corbieres Cistus (*C. Corbariensis*).—This distinct-looking dwarf evergreen, which seldom exceeds 3 ft. in height, is found wild over a large area in Spain and the south of France, especially on the mountains of Corbieres, from whence it is reported as having been sent to this country in 1656. Its leaves are of an ovate form, wrinkled on both sides, deep green, very glutinous, and fringed. The flowers, which appear in May and June, generally in remarkable profusion, are pure white, tinged at the margins with delicate rose. This is one of the hardiest, as well as the most ornamental, of the genus. It is of very free growth, and well worthy of a prominent place among neat, dwarf, wall evergreens.—“The Gardener.”

PRUNING FOREST TREES.

OLD AND NEW METHODS.

SURE indications of an increased and increasing attention to the growth and management of timber trees are afforded by the anxiety which is now manifested respecting proper methods of thinning and pruning them. At the close of the last and the commencement of the present century great complaint was made about the large quantities of defective Oak timber which was admitted into our

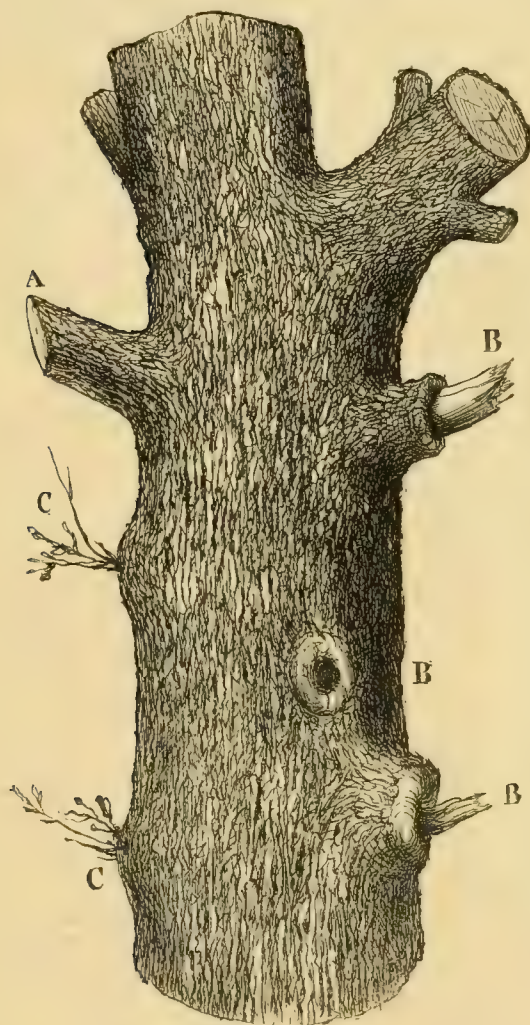


Fig. 1.

dockyards and afterwards rejected as being unfit for use. The demand for Oak timber had for many years been great, and the purveyors found their choice of trees more restricted year after year. The supplies from public and private sources failed to keep pace with the demand. An opinion sprang up that the cause of the evil was the neglect of pruning, and that the rotten branches dying back upon the trunks carried decay to the very hearts of the trees. Many owners of Oak plantations at once commenced a system of pruning which was little better than an indiscriminate lopping of branches; but fearing that too close an application of

the saw would permanently injure the trunk, they cut off branches at distances of 1 ft., 2 ft., and even 3 ft. from it, leaving the stumps to die back, and in some cases intending to cut them off closer at the time of a second pruning. This system of snag-pruning was soon found not to answer, for a rapid decay of the stump frequently increased the evil which it was meant to cure, and produced rotteness where distortion of the grain would have been the sole evil. The stumps upon which living spray was left, or from which it afterwards sprang out, continued to live on, but they produced irregularities of growth which were almost as objectionable as the dead knots of the decaying branches. An improved method of pruning properly, called foreshortening, first employed by Mr. Billington in the Forest of Dean, was afterwards successfully applied to the hedgerow timber upon the Holkam estate, in Norfolk, by Mr. Blaikie, then the land steward there.

With timely attention no tree should require much pruning after the age of twenty years, and few branches should be cut off after they have attained a diameter of more than 2 in. or 3 in., and consequently have formed red, or heart-wood. But from the results of early neglect, from accidents by winds and other causes, from a desire to open out and extend views, to mitigate the effects of shade, or to improve the form of trees, injured branches frequently require to be removed, and wide-spreading ones of large size to be cut back. From a neglect of timely pruning also arises wind shake in all its



Fig. 2.

forms. Whenever the head of a tree is very unevenly balanced, heavy gusts of wind produce oscillation, resulting in longitudinal rents from the top to nearly the bottom of the trunk, and extending from the pith to the bark. In a similar way is produced cup shake, by which the inner layers of alburnum are separated from the outer, the whole forming a series of tubes which drop apart when the trunk is cut up.

The annexed woodcuts afford illustrations of both the old or snag method of pruning, and the new or close method:—

Fig. 1, represents the condition of an Oak tree in the twelfth year after pruning. A is a branch only recently cut off at a distance of 9 in. or 10 in. from the trunk; EBB are the stumps of branches which were cut off in a similar manner at the time of the original pruning, and which have now arrived at the stage when they communicate their own rottenness to the organs of the body of the tree; CC are knots, which, though now covered, are producing defects in the timber from the circumstance of their having been cut away 2 in. or 3 in. from the body of the tree. These are the remains of branches of a large size, and the knots continue the disorder in the tree by maintaining the deviation of the tissues and woody fibre.

Fig. 2 represents a branch of large size recently cut off about 8 in. from the trunk, and the surface of which is already splitting from the combined action of the sun and the atmosphere, thus admitting moisture which will rapidly make its way to the heart of the tree. From its having been cut off at so great a distance from the trunk after the bark had become considerably indurated, perfect healing is impossible.

Fig. 3 shows the same stump in the fourth year, when decomposition has made considerable progress, because the bark upon the edges of the cicatrice has not been able to fix itself upon and to over-lap the stump. In consequence of this, the bark itself is falling back from and exposing the wound.



Fig. 3



Fig. 4.



Fig. 5.

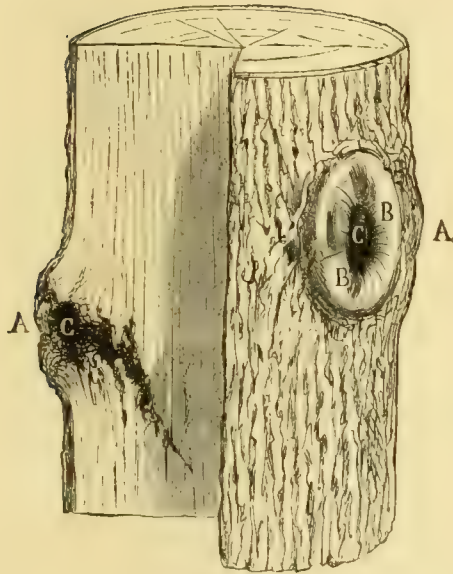


Fig. 6.



Fig. 7



Fig. 8.

Fig. 4 represents the same stump in the sixth year after amputation, when decomposition has made still greater progress, and all hopes of arresting it must be abandoned.

Fig. 5 shows its state in the eleventh year, when the rot has formed a gutter, which is extending deeply into the woody tissues, and in which is to be found a considerable quantity of red and fetid water. The stump, being cut obliquely, with its face upwards, takes in water like a sponge, and retains it as in a reservoir. The incessant action of the water renders it impossible to arrest decay, which is consequently rapid.

Fig. 6 is a section of an Oak fifty years old, the branches of which have been cut off at distances of from 8 in. to 12 in. from the trunk, and have since become destroyed by atmospheric influences. AA show the surfaces of the stumps; BB the lips of the cicatrice, which in their efforts to approach each other meet with nothing but decomposed and rotten tissues, instead of sound and solid wood upon which they could fix themselves; consequently they will never unite or cover the wound. CC are rotten masses caused by the decomposition of the woody fibre of the stump, and by the ravages of insects; they stretch deeply into the body of the tree, and will in time extend to the very bottom of the trunk.

Fig. 7 affords an illustration of the newer and more scientific method of pruning, in the second year after the operation has been performed. A fair-sized branch has been removed from an Oak tree from forty to fifty years old. From the cut having been made near the body of the tree, and close to the ringswell, or protuberance of bark and wood which surrounds the base of the branch, natural healing is already far advanced. The surface of the wound is sound and free from all the elements of destruction, which is partly the consequence of its having been dressed at the time of cutting. Whenever a branch of considerable size is cut off near the trunk, the process of healing over is very much facilitated by an application of grafting-clay in a moist state, as wounds from the saw, the pruning chisel, from wheels, or from other causes are healed over much more rapidly when light and air are excluded. Dressings of various kinds, such as hot tar, grafting-wax, &c., have been tried and recommended, but none of them surpass in utility the common clay.

Fig. 8 represents a section of an Oak tree from sixty to eighty years old, in the tenth year after pruning, and upon which perfect healing has taken place, leaving only a slight longitudinal crevice where the lips meet, but which does not extend into the wood. Upon the superincumbent layers of wood when cut up there would appear but a feeble deviation of the fibres. This would be so small as not to interfere with the strength and pliantness of the timber, or cause harm to any part of the woody tissue. Upon recovering from such a wound the tissues could resume their natural and regular direction, the surface of amputation acquiring each year new layers of the white substance between the bark and the wood. After this follows perfect or sound wood, and even the lips of the wound unite and become sound, having retaken the qualities, and almost the appearance, of the original bark, of which it now performs all the usual functions of protection and vitality.

Pluckley, Kent.

A. J. BURROWS.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Profits of Planting Forest Trees.—A Mr. White purchased an estate consisting of high and barren land near Durham, in 1770, for £750. Its extent was upwards of 700 acres. During the first seven years he surrounded it with a strong fence, drained the swampy parts, and planted all except an arable farm of 140 acres. He planted a great variety of trees, Larch and Scotch Pine predominating. At the end of twenty-five years he cleared a portion, and built a commodious house, with proper surroundings. After the first ten or twelve years the plantations began to pay well in thinnings for pit-wood and other purposes. When inquiries were made many years afterwards it was found that the Larch wood alone was making a return of £650 per annum, and for five or six years his son had received more than £400 a-year for his Larch bark, so that the revenue of the entire estate derived from the timber alone was over £1,000 a-year, while the farm, with the recently-formed park, which was let with it, produced a rental of £250 a-year, a result partly attributable to the improvement of the land, caused by the growth of trees, and partly to the shelter afforded to the homestead and farm lands by the standing woods. It is a well-known fact that where Larch is grown in a gravelly soil, upon which there is a fair quantity of vegetable mould, its value is doubled every three years after it is fifteen years old, and every five years after it is five-and-twenty. A valuation of the above woods was made in 1826, when it was estimated that the standing timber was worth the sum of £30,000.—B.

Catalpa speciosa.—This is described in some detail by Dr. Bolle in the *Monatsschrift* for September of the current year. In fact he delivered a lecture before the Horticultural Society of Berlin on this novelty, the report of which occupies nine pages in the publication named. *Catalpa speciosa* was discovered, or distinguished from *C. bignonioides*, by Professor Sargent, of Cambridge, Massachusetts. In the first place we should say that it is stated to be considerably hardier than the *C. bignonioides*, which is no doubt the case, as it inhabits the central States of the Union and extends further northward. Dr. Gray, "Synoptical Flora of North America," vol. ii., part 1, p. 320, gives the habitat and distribution of the old species as:—"River banks, South Illinois to Georgia, West Florida, and Louisiana." *C. speciosa* is known to occur in the States of Kentucky, Tennessee, Missouri, Ohio, Illinois, and Indiana. The distinctive characters of this species or variety are the more gradually tapering leaves, larger white flowers, appearing in Ohio during the first fortnight in June; a larger and more compressed seed-vessel, often 16 in. to 20 in. long; shorter, broader seeds, with wings of equal width at their rounded ends. The bark is also of a darker hue, and more deeply furrowed, and the wood is considerably heavier. The tree is taller and handsomer than *C. bignonioides*, and it bears the severest winters without injury up to 42° N. lat. We (*Gardeners' Chronicle*) have examined a number of dried specimens of *Catalpa* from various localities in North America, but we have seen none which could belong to this new species or variety. Professor Sargent has sent seeds of *C. speciosa* to Dr. Bolle, and we daresay it has found its way to this country ere this.

Tree Felling.—Notwithstanding the examples of axe-felling timber which have been set in high quarters, we cannot but look upon the method as a clumsy one at the best, and at the same time both wasteful and slow. As an exercise it may prove excellent, and, looking at it from the woodman's point of view, "the more hewing the more chips." But felling with the cross-cut saw is not only more expeditious, but also more workmanlike, as an experienced woodman can by this method throw his tree within a few feet of the spot which he selects for it. By fixing on his site, and cutting his triangular notch, called the fall, in the proper direction, hewing down the spurs on a level with the surface of the ground to form a plane for his saw to work upon, and driving his wedges well up, according to the balance of the head of the tree as his saw approaches the fall, the work is performed with the greatest economy of both time and labour, and with the least injury to the rest of the trees.—A. J. B.

Sizes and Ages of Oaks.—Mr. Basil Edwards states that he has received notices and descriptions of several very fine Oaks in answer to his enquiry about large Oaks in the *Times*. Of these the Cowthorpe Oak, Yorkshire, seems to be regarded as the largest Oak in Britain. Its measurements, as furnished by the Rector of Cowthorpe, are—at the ground, 55 ft. 6 in.; 5 ft. above the ground, 38 ft. 4½ in. Those of the Newland Oak are—at the ground, 46 ft., and 5 ft. from the ground its girth is 47 ft. 6 in. Opinions may differ as to which of these fine trees is the larger, but a tree which measures 47 ft. 6 in. at a height of 5 ft. from the ground is surely a larger tree than one which measures even 56 ft. close to the ground, where it is unavoidable to take the root buttresses or some part of them into the measurement. It may be interesting to know that the Newland Oak, which from the above measurement seems to be the largest in the country, is mentioned in Domesday Book as a large tree in the new lands at that time cleared. This, allowing for the slow growth of Oaks, will give it an age probably not inferior to its Yorkshire or any other competitor.—*Times*.

Advantages of Large Plantations.—In the very hardest frosts the ground is seldom frozen in the middle of a large and well-set coppice of six years' growth and upwards. Even in that bleak and terribly cold country, New Brunswick, where the frost comes about the 7th of November, freezes the River St. John (a mile wide) over in one night, so that men walk across in the morning—where in the open lands the frost goes 4 ft. down into the solid ground, if you go half a mile into the woods you are in a mild and pleasant climate. I have scores of times gone to the edges of the woods wrapped up in flannels, blankets, and furs, and when I got in reduced my dress very nearly to an English one.—C.

A Hint for Planters of Exposed Sites.—Trees have their feelings; and what must inevitably be the consequence of taking a young Oak from a warm coppice and planting it on a naked common? Plantations in these situations are useful, ornamental, and therefore highly praiseworthy, but then the trees should be raised for the purpose—raised and managed with a view to their destination. The young trees should be moved twice at least, and they should at the last removal be placed at a good distance from each other.—COBBETT.

THE FRUIT GARDEN.

GRAPES AND THEIR CLASSIFICATION.

BY A. F. BARRON.

THE varieties of Grapes are so numerous, and a large proportion of them nearly, if not quite, unknown, and so unsuitable for cultivation in this country—being mainly used for wine-making—that it is not desirable, even were it possible, to attempt in this place a complete enumeration of them. We shall rather confine ourselves to noticing such of the different varieties that are or have been grown in this country, as are distinct, or have some supposed merit attached to them.

In a broad sense, the cultivated Grapes are divisible into two great families. The European, including all the varieties of Grapes of the Old World; the American, including those belonging to the New World. These two series of Grapes are very distinct, not only in constitution, but also in foliage and fruit; but as the American Vines are not cultivated in this country for their fruit, if we except the Strawberry Grape and an occasional plant of the Catawba or Isabella, it will be unnecessary to allude to them further.

There has been no very definite classification of Grapes yet adopted, although the desirability of some simple and popular way of grouping the different varieties, whereby those who have only a limited knowledge may comprehend something of the nature or character of the variety named, is self-evident, and the want of it has long been felt. Thus, for example the terms Muscat and Sweetwater are pretty well understood, as conveying a knowledge of the flavour and general character of the respective varieties to which they are attached; and it is by an elaboration of this idea that we propose to arrange them into three great classes or sections—

Firstly, by the flavour of the fruit—

1. Sweetwater Grapes
2. Muscat Grapes
3. Vinous Grapes

Secondly, by the colour of the fruit—

- A. Black or purple
- B. White, green, or yellow
- C. Red or tawny

Thirdly, by the shape of the fruit—

- * Oval
- ** Round

making in all eighteen well-marked groups or subdivisions. In this way, one would be enabled to speak of the Chasselas Musqué, for example, as a round, white, Muscat Grape; of the Black Hamburgh, as an oval, black, Sweetwater Grape; and of the Gros Colman, as a round, black, Vinous Grape, &c.

European Grapes.

Class I.—Sweetwater Grapes.

Varieties with sweet, sugary, or saccharine flavour, the juice thin, but pleasant, varying in sweetness; skin generally thin and tender. They are mostly early varieties and ripen freely. Those termed Muscadines are here included, as well as the greater portion of what the French term Chasselas:

A.—Berries Black or Purple.

* Oval.

- | | |
|----------------------------------|-------------------|
| 1. Black Hamburgh or Frankenthal | 3. Black Prince |
| 2. Black Monukka | 4. Oeillade Noire |
| | 5. Trentham Black |

** Round.

- | | |
|--------------------|------------------------|
| 6. Black Bordeaux | 9. Black Corinth |
| 7. Black July | 10. Miller's Burgundy |
| 8. Black Muscadine | 11. Mill Hill Hamburgh |

B.—Berries White, Green, or Yellow.

* Oval.

- | | |
|-----------------------------|--------------------------|
| 12. Bicane | 16. Golden Champion |
| 13. Cabral | 17. Madeleine Royale |
| 14. Foster's White Seedling | 18. Scotch White Cluster |
| 15. Grove-nd Sweetwater | 19. White Romain |

** Round.

- | | |
|---------------------------|-----------------------------|
| 20. Buckland Sweetwater | 28. Golden Hamburgh |
| 21. Chasselas de Florence | 29. Gros Romain |
| 22. Chasselas Royal | 30. Pitmaston White Cluster |
| 23. Chaptal | 31. Prolific Sweetwater |
| 24. Ciotat | 32. Royal Muscadine |
| 25. Duke of Buccleuch | 33. Stillward's Sweetwater |
| 26. Dutch Sweetwater | 34. White Frankenthal |
| 27. General della Marmora | |

C.—Berries Red, Tawny, or Variegated.

* Oval.

35. Abbee

** Round.

- | | |
|--------------------|-----------------------|
| 36. Aleppo | 39. Gromier du Cantal |
| 37. Chasselas Rose | 40. Lombardy |
| 38. De Candolle | 41. Tokai des Jardins |

Class II.—Muscat Grapes.

Varieties with musky or perfumed flavour, generally with firm flesh. The larger varieties, as a rule, require a warmer temperature to ripen them than the Sweetwaters. The Frontignans are included amongst the Muscats:

A.—Berries Black or Purple.

* Oval.

- | | |
|-----------------------------|---------------------|
| 42. Ingram's Hardy Prolific | 44. Muscat Hamburgh |
| 43. Madresfield Court | 45. Mrs. Pince |

** Round.

- | | |
|-----------------------|-------------------------|
| 46. Angers Frontignan | 50. Jura Frontignan |
| 47. August Frontignan | 51. Muscat de Lierval |
| 48. Black Frontignan | 52. Meurthe Frontignan |
| 49. July Frontignan | 53. Sarbelle Frontignan |

B.—Berries White, Green, or Yellow.

* Oval.

- | | |
|--------------------------|--------------------------|
| 54. Ascot Citronnelle | 57. Muscat of Alexandria |
| 55. Canon Hall Muscat | 58. Muscat Bifère |
| 56. Ferdinand de Lesseps | 59. St. Laurent |

** Round.

- | | |
|-----------------------------|------------------------|
| 60. Ascot Frontignan | 66. Mrs. Pearson |
| 61. Auvergne Frontignan | 67. Ottonel |
| 62. Chasselas Musqué | 68. Saumur Frontignan |
| 63. Dr. Hogg | 69. Trovère Frontignan |
| 64. Duchess of Buccleuch | 70. White Frontignan |
| 65. Early Silver Frontignan | |

C.—Berries Red or Tawny.

** Round.

- | | |
|------------------------|---------------------|
| 71. Grizzly Frontignan | 73. Muscat Champion |
| 72. Madeira Frontignan | |

Class III.—Vinous Grapes.

Varieties with a strong vinous or somewhat harsh flavour, and thick skin. They mostly require a considerable amount of heat and time to ripen them. Generally termed late Grapes.

A.—Berries Black or Purple.

* Oval.

- | | |
|----------------------|------------------------|
| 74. Alicante | 78. Morocco Prince |
| 75. Alnwick Seedling | 79. Royal Ascot |
| 76. Black Morocco | 80. West's St. Peter's |
| 77. Gros Maroc | |

* Round.

- | | |
|--------------------|---------------------------|
| 81. Aramon | 84. Gros Colman |
| 82. Espiran | 85. Gros Guillaume |
| 83. Dutch Hamburgh | 86. Lady Downe's Seedling |

B.—Berries White or Yellow.

* Oval.

- | | |
|--------------------|-------------------|
| 87. Chavoush | 91. Trebbiano |
| 88. Golden Queen | 92. Waltham Cross |
| 89. Royal Vineyard | 93. White Lisbon |
| 90. Syrian | 94. White Tokay |

** Round.

- | | |
|---------------------------------|----------------|
| 95. Raisin de Calabre | 97. White Nice |
| 96. White Lady Downe's Seedling | |

American Grapes.

These are all more or less perfumed, and have a peculiar foxy taste, with gelatinous flesh.

A.—Berries Black or Purple.

* Round.

- | | |
|-------------|----------------|
| 98. Catawba | 99. Strawberry |
|-------------|----------------|

This synopsis of select varieties includes all the Grapes at present known which we think most deserving of attention on some ground or other, though for general utility the number might be reduced within very narrow limits.—*Florist and Pomologist*.

The Sub-tropical Garden.—A new edition of this book has been published by Mr. Murray.

COLOUR IN GRAPES.

JUDGING from what one reads on this subject, much importance seems to be attached to admitting air to the Vinery, particularly when the fruit begins to colour. No doubt ventilation is necessary at all times, but the colouring process does not begin when the colour commences to be visible, and no kind of treatment that can be adopted will make Grapes colour after that period if the conditions of the Vines previously and the treatment have not been such as to promote a good finish. The conditions under which Grapes will colour perfectly sometimes are puzzling. As good samples as ever I saw were ripened at the new year, and at periods between that and April. Mr. Michie, an amateur Grape grower at North Berwick, ripened crops of Black Hamburgh at the new year several years in succession, and they were exceedingly well finished; and were sold, I believe, in London for 30s. per lb. I have had Black Hamburghs, from pot Vines here, ripe early in April that were as black as jet, and covered with as deep a bloom as ever I saw on Grapes. Yet the Vines that produced them were not extra strong nor the bunches or berries extra large. The finish and flavour were the most remarkable things about them. In neither of the above cases could the colour be said to be due to the free ventilation, for little air could be admitted at the dead season of the year. On the other hand, the worst-coloured Grapes I have ever seen were ripened at the most favourable season of the year, viz., after midsummer.

My own impression is that anything that tends to produce good foliage on the Vine, and of a dark green colour, and to preserve the same in good condition upon the Vines till the fruit is ripe, will also produce well-coloured Grapes and flavour of the highest excellence. Vines with thin pale green foliage, produce fruit of the same shade at an early stage, and such almost invariably finish badly at the end, and the berries are fleshless and insipid or sour. The colour of Grapes does not lie altogether in the skin, as some imagine, and hence it is not to be put on by external agency, as, for example, by the free admission of air after the season of growth is nearly completed. The skin of a well-coloured Grape looks red after it is peeled off the berry, and it will be found that a good deal of the colouring matter lies on the surface of the flesh, and always most plentifully near the point of the berry and least near the foot-stalk. It will be observed, too, as a rule, that the firmest-fleshed fruit looks the blackest—the opaque body no doubt helping to deepen the colour.

But the most curious thing about colour in Grapes is that, no matter how deep it may be when the Grapes ripen, it disappears to a great extent if they are allowed to hang long upon the Vines. This is especially so in the case of the Black Hamburgh, which turns to a foxy-red colour after a while. A correspondent of THE GARDEN has drawn attention to this fact before. It is pretty certain that over-cropping will cause the colour to fail, but this is not always the cause, as is proved by every-day's experience. Still, it may be asserted as a general rule that well-ripened wood and good foliage carried till the end of the season, in conjunction with moderate crops, will ensure perfect colour in the great majority of cases. J. S. W.

CROPPING PEACH AND NECTARINE TREES.

MR. COWBURN, in saying (p. 372) that one Peach to the square foot cannot be called a crop is, to a certain extent, right; still, if the crop was regular and the fruit very large, any one might be satisfied with such a result; but for crops of fair-sized fruit one to the square foot is not a sufficient or remunerative crop for the Peach, and it is less so for the Nectarine. Indeed, the system of reckoning the crop by the square foot or superficial area of whatever extent, or at least of thinning it out on that principle, is a wrong one, and I do not suppose that many Peach growers follow it, for it soon becomes evident to the practitioner that by such a method of thinning the energies of the tree would be very unequally taxed. For example, some strong shoots will bear a good fruit every 6 in. of their length, and be all the better of being taxed to that extent; while on other and weaker shoots it would be unwise to have more than one, and on some none should be allowed to grow. During the past year we had as many as six fruits of the Victoria Nectarine on strong shoots about 2 ft. long, and some shorter shoots bore at even a considerably heavier rate; but on the average I daresay a good-sized fruit every half square foot, or a little less, was about the crop. Shoots lying contiguous and cropped at that rate looked very heavily laden, but they could well bear it. We have trees (Nectarines) here that have been cropped at about the above rate for more than a dozen years without showing the least signs of distress, though they have not missed a crop during that period. Still, much depends upon the health of the tree and the variety.

There can be no doubt that heavy cropping is as injurious to the Peach as to the Vine, and weakly trees should be cropped only lightly. In some cases, indeed, we have seen feeble trees greatly

benefited by being denuded of their crops entirely for a year when restorative measures were being taken. Such strong-growing Peaches as the Grosse Mignonne and Walburton Admirable, and Nectarines like the Victoria, will bear cropping at a heavier rate than the Royal George Peach or Downton Nectarine respectively, which are less vigorous growers. No rule can be laid down in the matter, in fact, that would apply to all cases; the quantity of fruit to leave must be a question of judgment, but we would prefer to err on the safe side, and not over-crop; but at the same time we cannot say that we ever saw a crop thinned to one fruit for each square foot where the cultivator had the option of leaving more. On a moderately strong shoot, about 9 in. or 1 ft. long, on a thinly trained tree, we should, perhaps, leave one good fruit; but on strong young limbs, inclined to be gross, we should not hesitate to leave a fruit every 3 in. or 4 in. if they would stay on. I have often cropped such strong branches as heavily as this, but the weaker shoots near the base of the tree were spared proportionately. It should never be forgotten, however, that the early and free thinning of the fruit is a great aid to the maturation of a fine crop, and I attach far more importance to thinning freely before the fruit is stoned than afterwards. Strong young trees do not exhibit much sign of the strain put upon them at the stoning period, but they do feel it sensibly, nevertheless, as any close observer may see, and all vigour spent then upon fruit that is not intended to be left is so much lost to that which remains. It is caution, I am aware, that induces cultivators to delay final thinning till after the stoning period, and I confess I do not like to thin down finally till after that period; but at the same time, I leave a very slender margin in the case of healthy free-bearing trees.

Some trees in certain soils set a disproportionate quantity of fruit-buds and few leaf-buds, particularly the Noblesse Peach, but all such should have their fruit-buds thinned before forcing begins, taking away the smallest and puniest-looking of the group, and which is usually the middle one, that should have been a leaf-bud. Then, as soon as the fruit is set, the most of it should be rubbed off, leaving the largest and most prominent, and, just before stoning begins, the trees should be gone over again and thinned down to about a crop. J. S. W.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Training Peach Trees on the Extension System.—I have to thank "J. S. W." for his explanation (p. 386) respecting this system, but I cannot see why, in support of his opinion, he should quote from the "Gardener's Assistant" the opposite method in its extremity, in order to show deformity, abortion, and premature decay, for he will find, on referring to p. 372, that it is what I there term barbarous pruning, which, together with the so-called extension system, I equally deprecate. A line drawn somewhere between the two extremes I have always found to be best. For proof let me refer to No. 404, p. 148, of THE GARDEN, where he will find that the Peach and Nectarine trees here bore ten good fruit throughout the square foot, and my opinion is that unless the knife is judiciously applied to the weaker shoots when at rest it is impossible for them to maintain their own with the more robust in the coming season's contest, or the trees to carry crops year after year such as those to which I have referred. Pears, Apples, *Cratægus pyracantha*, &c., do not come under the same head, each requiring separate or different treatment. A good gardener, in order to secure extraordinary results, must, like a good doctor, possess a full knowledge of the nature, constitution, and location in which his trees are placed, knowledge not to be acquired, in either case, by theoretical teaching.—J. COWBURN.

Inarching Grape Vines.—Amateurs often have Vines that are unsuitable for their purpose, therefore how best and quickest to obtain better kinds, and at the least cost, is to them a question of importance; but by far the greatest consideration lies in discovering a way to obtain a good crop in the shortest time. I have just seen the result of an experiment carried out by Mr. Wincote, of the Grove Vineyard, Feltham, that shows forcibly the value of inarching new or other kinds of Grapes on old stems. At one end of a long lean-to range of glass of over 200 ft. run, and which has hitherto been cropped two-thirds with Muscat of Alexandria, the rest being Lady Downes, Barbarossa, and Gros Colman, all the coloured kinds were last spring twelvemonth inarched with pot plants of the Muscat. The take was exceptionally good, but a couple were, unfortunately, broken off during the summer. The old Vines carried as usual their crop of fruit, and these, early in the winter, were cut clean away to allow the inarched rods to come up. The result in growth has been almost astonishing, the new rods being as stout as broomsticks, and ripe to the top of the house; whilst next the failures extra rods have been carried up of great size also. Further,

several are carrying small bunches of fine berries. The new top growth, having such immense root power below, has made about three times the growth that would have been obtained from newly-planted Vines, for which also a new border must have been made.—A. D.

Gilbert's Netted Victory Melon.—Although grown as a late crop, with several other approved sorts, this has been pronounced by good judges to be by far the best Melon of the year as regards flavour.—J. G.

Orchard Trees Dry at the Root.—In grubbing up some large Pear trees lately, I was surprised to find the soil beneath and about their roots as hard and dry as if we had had a tropical summer instead of one characterised by storm and flood. This is doubtless attributable to the rain being held in suspension by the foliage of the trees and long herbage underneath them, the moist season having induced an unusually heavy crop of rank Grass. We may therefore find after all that exceptionally wet seasons leave some benefit behind to make up for the temporary discomfort which they occasion. We have heard dismal forebodings as to the wood of fruit-bearing trees not ripening, but as the leaves are falling quite as early as in ordinary years, I am induced to think that trees, shrubs, and bushes will at least be benefited rather than harmed by the amount of rain that has fallen. Our soil is rather heavy, and retains moisture a long time; therefore, what would benefit us would, in this respect, be even more beneficial to light porous soils, where there is no doubt trees often suffer from dryness at the root more than people are generally aware of.—J. GROOM, *Linton*.

The Dunmore Pear.—The season for planting being at hand, I wish to recommend the Dunmore Pear to intending planters as highly deserving of notice, both for its excellence, and also on account of its coming into use between the seasons of Williams' Bon Chrétien and Marie Louise. The tree is very hardy, a vigorous grower, and bears most abundantly as a standard. It is, moreover, well adapted for cold or late situations. A standard tree here very rarely fails having a good crop. It is one of the best and most melting Pears in its season, and is deserving a place in a collection of choice Pears.—M. SAUL, in *Florist*.

Orchards on Grass.—Hundreds of acres of Apple orchards may be seen near Maidstone, some on Grass and some with bush fruits between the trees, Gooseberries, Currants, and Nuts being the general undercrop. During this season, however, many fine plantations have been cleared of bushes, and the land is being sown with Grass seeds to be fed off with sheep. This is not because the bush fruits failed, but because the Apple crop is so much more valuable that it is thought the trees should be freed from such root robbers. Thus set at liberty the surface-roots can revel undisturbed in the Grassy sward, and be constantly enriched by top-dressings. Under this treatment finer and cleaner samples of Apples are produced, and more money is realised without the bush fruits than with them. Of course, during the first few years, while the standard trees occupy but little space, the under fruit succeeds well and helps to pay expenses until the trees come into bearing; but the majority of cultivators of established orchards are daily becoming more in favour of a Grass crop over the roots of Apple trees; and, in addition to feeding sheep and other small stock under them, very few crops now repay a good rich manuring better than an Apple orchard.—J. GROOM, *Linton Park*.

Pears in East Norfolk.—As information is solicited (p. 360) respecting the behaviour of Pears this untoward season, perhaps the following scrap from this north-east part of Norfolk may be interesting. On east walls the Jargonelles were scarce and inferior; the Suffolk Thorn is a good crop, but it ripens slowly, and the fruit has no flavour; Williams' Duchesse d'Angoulême is very good, but, as might be expected, rather smaller than usual; the flavour is, however, now delicious. It is a valuable Pear for all seasons and soils. Beurré d'Amanlis is good, but small and late; Beurré Bosc is good, and looks like ripening well; Marie Louise is a poor crop, and the fruit is small; Louise Bonne of Jersey mildewed and cracked, and so did Forelle; Passe Colmar, too, is much cracked; Winter Nelis is small and poor, and Beurré Diel is worthless. Uvedale's St. Germain is likewise small, and much cracked. Of Glou Morceau I have two trees on an east aspect; on the one on the garden wall the fruit is worthless, on the other, which is on a building with the eaves projecting 1 ft., the fruit is excellent, showing the value of a good coping. From a west wall a good crop of Doyenné d'Été was gathered in August. On the same aspect the fruit of Fondante d'Automne is much mildewed and small; Josephine de Malines, on a south wall, produced an excellent crop of good clean fruit. On pyramids Beurré de Capiaumont has done well, as has also Vicar of Winkfield; I have never had the former better.—E. SENDALL, *Barningham, Norfolk*.

ANSWERS TO CORRESPONDENTS.

Mealy Bug on Vines.—Can you inform me how I can get rid of mealy bug, which is very bad in our Vineries. It is especially plentiful in houses in which our black Grapes are, rendering them uneatable.—J. W. S. [This is the worst of all pests that attack the Grape Vine, and strong measures are required to effectually deal with it. First of all well scrub with hot soapy water all the glass and woodwork, then limewash the walls, and as soon as the Vines are pruned remove all the loose bark; then well wash them with a strong solution of soft soap, taking pains to work it into every crevice, and a day or two after paint them over with a mixture consisting of 8 oz. of Gishurst Compound to 1 gallon of water, and a wineglassful of paraffin oil; add clay or cow manure to thicken the mixture and cause adhesiveness; afterwards remove the surface soil of the border, if inside, and replace it with fresh compost, or, if there be no border, thoroughly clean the floor with soapuds.—W. H.]

Spiræa japonica. I have some *Spiræa japonica*, last year's seedlings, raised in the conservatory; to what treatment should they be subjected in order that they may bloom again in winter and spring? A. B., *Norwich*. [After being forced they should be planted out on deeply-cultivated, well-enriched soil about 2 ft. apart, and kept free from weeds by frequent surface stirrings; during the growing season, should periods of drought occur, an unlimited supply of water and weak liquid manure should be given, as they delight in plenty of moisture at the root.—J. G. L.]

Fuchsias and Petunias.—What should be done with Fuchsias and Petunias which have done flowering in the conservatory? A. B., *Norwich*. [Fuchsias that have done flowering should now be kept moderately dry and placed in a cool house, from which frost is excluded, until February, when they should be pruned and started in a very gentle heat. Petunias are best cut in a little at once and kept growing gently in an intermediate temperature; they will then supply plenty of cuttings for spring propagation, which will strike readily and make fine plants for summer decoration; the old plants may then be discarded.—G.]

Weeds on Lawns.—What is the best means of eradicating Wild Sorrel from lawns?—Q. [The best way of getting rid of weeds of this kind is to loosen the soil with a fork and draw them out by the roots. Then sow some fine lawn Grass seeds and cover with fine rich soil, keeping it frequently rolled down firm. A dressing of soot and wood ashes will help to promote a luxuriant crop of fine Grass, as it is usually when this becomes thin through poverty of soil that noxious weeds flourish most.—L.]

Cyclamens.—I have some Cyclamens which were moved when in full bloom they came into leaf, but never flower. How can I induce them to bloom?—F. K. [Your Cyclamens are in all probability the commonly cultivated *C. persicum*, and if so, they should succeed under the usual treatment—that is, potting the plants in not too large pots in April, in rich light sandy soil, and growing them on in a frame till the end of the summer or later, when they should be showing flowers, and may be removed into a warm greenhouse to bloom. Afterwards the roots may be dried off till rotted in spring. Unless you are anxious to preserve the roots because of the associations connected with them you would have more success by sowing seed.—S.]

Seedling Camellias.—I have some Camellias raised from seed in 1872; they are now 3 ft. high, but never flower. Will seedling Camellias blossom?—F. K. [Seedling Camellias will bloom, but not so freely as grafted plants, for a time at least. To check their vigour they should be confined to small pots; but the speediest way would be to inarch shoots of the seedlings on named free-flowering varieties next spring. Inarching is easily effected, and it will enable you to prove in a short time whether your seedlings are worth anything or not.—J. S. W.]

Tuberose Culture.—I shall be glad of information concerning the cultivation of the Tuberose. I have one which has not flowered satisfactorily this year. It has developed young tubers, and it is for the future welfare of these that I feel anxious.—E. C. M. [In growing Tuberoses I find that they succeed best in a compost consisting of three parts turfy loam and one of sharp sand or road grit, leafsoil, and charcoal. I commence potting in the beginning of February, and keep on in succession until the end of March. I rub off the young tubers or offshoots, and pot firmly, the strongest singly and the smaller tubers three in a 6-in. pot. I then plunge them in Cocoa-nut fibre on a gentle hotbed, and give them plenty of air and but little water until they start into growth. I find them to dislike hard forcing. After they have thrown up flower-spikes they are removed to the Vineries and Peach house and trained to the back wall. Under this treatment we get a continuous supply of flowers from the end of May till December, each flower-spike producing on an average fifteen flowers. We use them largely for button-hole bouquets, for which they are indispensable.—J. C. M.]

Pears.—G. M.—Hacon's Incomparable is one of the good old Pears that used to be grown at Chiswick. It was raised by Mr. J. G. Hacon, of Downham Market, Norfolk.

Potatoes.—J. H. N.—The Potato which you have sent represents a by no means uncommon occurrence, of which there were fine examples at the last show of Potatoes at the Crystal Palace.

Names of Plants.—J. W. R.—*Coronilla Emerus*.—W. B. A.—1, *Adiantum Capillus-veneris laciniatum*; 2, *Selaginella incarnata*; 3, *Adiantum Capillus-veneris Moritzianum*; 4, *Onychium japonicum*.—M. L. D.—1, *Begonia incarnata*; 2, *B. Woltoniensis*; 3, *B. semper-virens*; 4, *B. Dregei*; 5, *B. Ingrami*.—A. K.—1, apparently *Jacaranda mimosaefolia*; 2, *Syncarpia laurifolia*.—C. D.—*Quercus Lucuberna*.—F. M.—Probably a hybrid Ghent *Azalea*, as it is near *A. pontica* and *A. nudiflora*.—M. W.—*Viburnum suspensum*.—Anon.—*Sedum carneum*.—H.—1, *Chirinia decussata*; 2, *Dipladenia boliviana*.—G. Y.—The *Pelargonium* sent is *P. tomentosum*, the sport you speak of is a somewhat unusual occurrence.—A. R. W.—The specimens are more in number than it is our rule to name at one time; the numbers, moreover, were so insecurely adjusted that when they were unpacked there were but few of the tickets on the plants. Those bearing numbers were: 3, *Begonia semper-virens*; 7, *Begonia Rex*; 11, *Blechnum lanceolatum*; 12, *Linaria Cymbalaria*; 14, *Ceterach officinarum*; 15, *Adiantum assimile*; some others we will answer next week. *Arbor*.—1, *Cornus sanguinea*; 2, *Liquidambar styraciflua*; 3, *Taxodium distichum*; 4, *T. semper-virens*; 5, *Cotoneaster affinis*.—P. H. C.—1, *Oncidium varicosum*; 2, *Pteris longifolia*; 3, *Salvia splendens*; 4, *Adiantum cuneatum*; 5, *Lasiandra macrantha*; 6, *Pteris serrulata*.—R. S.—1, *Cotoneaster affinis*; 2, probably a species of *Clethra*, but cannot name without flowers.—P. & W.—We cannot identify the plant by the poor specimen sent.—S. T. D.—1, *Aster longifolius*; 2, *A. levis*; 3, *A. Chapmanii*; 4, *Boitonia decurrens*; 5, apparently fruits of *Cimicifuga racemosa*; 6, *Aster turbinellus*.—A. B. C.—Next week. *Devon*. 1, *Adiantum*

Capillus-veneris; 2, Asplenium monanthemum; 3, A. lanceolatum; 4, A. Trichomanes; others next week.

Names of Fruits.—*J. P.*—West's St. Peter's. *Anon.*—The white kind is Foster's Seedling the other Black Hamburgh. *J. L.*—1, Kerry Pippin; 7, Ribston Pippin; 11, Winter Pearmain; Pears—4, Crassane; 3, Brown Bcurré; others next week. *M. C. R.*—Pears—Marie Louise; 2, Baurré Hardy; 3, Louise Bonne of Jersey. Apples—*J. T.*—1, Holland Pippin; 2, Cellini; 3, unknown; the Pear is Swan's Egg. *J. S.*—Apples—1, Golden Pippin; 2, Blenheim Orange; 3, Ribston Pippin; 4, Cellini; 5, Holland Pippin. *R. F. C.* Pear—Baurré Hardy; Apple—Golden Pippin.

Questions.

Gesneras Shedding their Corollas.—We have a number of Gesneras of the Nagelia type to all appearance in excellent health. The plants are about 2½ ft. high and almost perfect in form, but after developing one half of the blooms on their flower-spikes they refuse to open any more, the corolla falling off and leaving nothing but the calyx and the pistil behind, and so on the spike progresses. The plants are in 5-in. pots and well filled with roots. We have them in a minimum temperature of 60°, occasionally 65°, with fire heat. While they were making their growth we occasionally gave them a little weak liquid manure, but have almost withheld it since the blooms commenced to open. I am quite at a loss to know what can be the cause of the failure in question, and shall be obliged to any of your correspondents if they can help me to a solution of the difficulty. I may add that they went the same way last year, but the previous year they were beautiful and flowered to the extremity of the spikes.—*ENQUIRER.*

Pyramid Apples and Pears.—What sorts of eating Apples and Pears should I grow as pyramids? My soil is loam inclining to clay, and the situation rather exposed to wind at present. Can any one advise me?—*R. A.*

GARDEN DESTROYERS.

THE COMMON DAGGER MOTH.

(*ACRONYCTA PSI*.)

THE common, or as it is known by some authors, the grey dagger moth, is another member of the family Noctuidæ, of which in these papers I have already drawn attention to four species. Its caterpillars, like those of the species already noticed, are at times, when in great abundance, very injurious to the plants which they attack; but instead of destroying kitchen garden produce and herbaceous plants, they feed on the leaves of fruit trees, White Thorns, and Roses, which they sometimes much injure by depriving them of their leaves. The common dagger moth, as its name implies, may often be found in great numbers, and in all parts of this country. When orchard trees are attacked by this insect the boughs should be well shaken, and a sheet or something of the kind spread underneath to catch the caterpillars on when they fall. As many as possible should



Acronycta psi and Caterpillar.

be picked off by hand. This can easily be done in the case of smaller trees and Rose bushes, as the caterpillars, on account of their size and coloration, may be found without any difficulty. The stems of the trees should be kept as free as possible from Moss and loose pieces of bark, and all cracks, &c., should be carefully examined

during the winter, as it is in these places that the chrysalides are generally found, and the destruction of one chrysalis will probably be the means of saving the tree from a brood of caterpillars. The moths begin to appear at the end of May or beginning of June, and then may generally be found plentifully till the end of August. There are probably two broods during the summer. The caterpillars are most abundant in August, September, and October, and in the last month, when fully fed, each finds a convenient crack or shelter of some kind on the boughs or stems of the trees, and spins a white cocoon, in which it undergoes its transformations, and appears as a perfect insect in the following May or June. The common dagger moth so closely resembles the dark dagger (*Acronycta tridens*) that



Caterpillar of *Acronycta tridens*.

it is by no means easy to distinguish the two insects when in their perfect state. This is, however, of little importance except to the entomologist, as the caterpillars of both species are equally destructive, and are similar in their economy in every respect; but they may, however, be easily distinguished from one another, as their markings are very different, as will be seen by the accompanying figures and the descriptions given below. The moths measure across the wings, when they are fully extended, about 1½ in. The upper pair are grey, with various blackish markings, by which this may easily be distinguished from the other species of this genus (except *A. tridens*). One of these dark marks is a branched longitudinal line extending from the base to nearly the middle of the wing. Near the lower and exterior angle of the wing is another, which is somewhat in the form of a dagger or the Greek letter psi, whence the popular and scientific names of this insect. Near the upper margin of the wing, and about the centre, is a dark mark, something like the letter x, between which and the end of the wing is a smaller dagger-shaped mark. The lower wings are nearly white, those of the females being rather darker than those of the males. In both sexes the veins are darker than the rest of the wings. The head and thorax are grey, with a black line on each side of the head, which is continued on the thorax just above the junction of the wings. The body is also grey. The antennæ are short, not toothed, and alike in both sexes. The caterpillars, when full grown, attain the length of 1½ in. The head is black, the body greyish-black, with a broad yellow stripe down the middle of the back, which is interrupted on the fourth joint by a high conical black tubercle, the point of which bears a tuft of hairs; and on the eleventh by a large hump; below this yellow band is a black one, which is ornamented on every joint but the first four by two red spots, separated by two whitish tubercles bearing black hairs; below this again is an ashy-grey stripe covered with grey hairs; this stripe becomes reddish as it approaches the foremost joints. The underside and legs are of a dingy flesh-colour. The caterpillar of the dark dagger moth (*A. tridens*) is of the same size as that of the preceding species. The head is black, but is so covered with grey hairs as to appear grey. On the fourth joint of the body is a large black tubercle, which is not nearly so high as in *A. psi*, and on the eleventh joint is a kind of hump with a white mark on the top; the intermediate joints have an interrupted orange band on their backs; the second and third joints have each a central reddish spot; below this on the joints which follow the fifth is a black band with three white and two reddish spots; beneath this stripe there is a yellowish-grey mottled band, with a yellow marginal line. The hairs on the body are long and silky, but not very numerous.

G. S. S.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT GROWING FOR PROFIT.

No one, I think, can look round the country without coming to the conclusion that there has been a good deal of haphazard work in orchard planting, and, as a matter of course, many of the trees have not, and never will, produce a satisfactory result. Many trees are too old, too exhausted, and in too neglected a condition to pay a fair rent for the space which they occupy. Many others, from having been planted in an unsuitable situation, or from not being prolific kinds, are in the same predicament. Still fruit culture is advancing, and it must continue to advance before it overtakes the demand, or, indeed, keeps pace with the increase of population. In commencing fruit culture for profit there are three main considerations that must never be lost sight of, as they are all essential to success. These are—1st, selecting the right site; 2nd, its proper preparation; and, 3rd, planting the right kinds of trees.

In the selection of the site of an orchard, the majority of planters have but little choice. Sometimes a lucky hit is made in selecting a sunny open situation on a gentle declivity facing the south, sheltered from the north and east; and wherever this is done, and the right kinds of trees planted, success invariably follows. In this country most of the villages and farmhouses are situated in dips or hollows. Occasionally a village may be found on the top of a hill, but not often; much more frequently it is nestling at its foot, with a stream of clear water running near or perhaps through its midst. Around the villages generally cluster the orchards and gardens, but I suppose few people require now to be told that these natural basins are just the worst places that could be selected for fruit trees. The cold, raw fogs and frosts come rolling down the hillsides in spring, settling in the low places, and killing every tender blossom of Apple, Pear, or Plum tree that is fully expanded. Often trees on higher ground escape, when those in valleys are ruined. The breezy hillside is a far better situation for a fruit garden than a valley, even when the soil—which is generally the case—in the latter position is better in quality than that on the hillside. Somehow an idea seems to prevail that if fruit trees are not planted near some dwelling the fruit would not be safe; but I think this is a prejudice that actual experience would prove to be groundless. If fruit growing is to be made to pay in our climate the trees must be planted in the most suitable places, regardless of all minor details. It is necessary to live some time in any particular neighbourhood or district before one is competent to select a site suitable for a fruit garden. In one place the north or east winds are the most destructive. A few miles away owing to some peculiar conformation of the ground, the west and south-west blast bears down all before it; therefore, in selecting the site of an orchard on a large scale, not only must the character of the soil be considered, but also how it lies for shelter from the most damaging winds. Where planting is done on a considerable scale, shelter could be planted to break the force of the winds. A belt or copse of Larch and Hazel would quickly grow into an efficient shelter; but a few trees of a more permanent character should be planted with them, so that in the future, when the Larch has attained to a profitable size, and the Hazel stools are becoming exhausted, they may be gradually cleared off, still leaving a grove of Oak, or, if the soil were suitable, a handsome and effective shelter of Coniferous trees. This kind of fruit culture could, of course, only be carried out by capitalists; but the time may come when proprietors of large estates may have to turn their attention not only to the rearing of flocks and herds, but also to fruit growing on a large scale by way of making the most of their land.

Having selected the site and fully considered the question of shelter in all its bearings, the next thing to be done is to ascertain if the land requires draining, which may be done by sinking a hole 3 ft. deep, and leaving it open some time to see if the water collects or stands in it. The truth is, all land for fruit growing, unless on a gravelly or sandy subsoil, will be improved by draining, and it is useless to make the drains less than 4 ft. or 4 ft. 6 in. deep. The drains should be laid straight down the face of the declivity rather than across it; and the nearness of the drains to each other, and the size of the bore of the pipes, will have to be determined by the nature of the soil. In most cases 2-in. pipes should be used for the auxiliary drains, and not less than 4-in. for the main drains, always bearing in mind that the drains not only carry off the surplus water—which should be done quickly—but that they also help to aerate the land. When the draining is finished, the land should be

trenched or thoroughly broken up 2 ft. deep. If it lies convenient for the work the steam plough and cultivator may be usefully employed to smash it up, intermix, and pulverise it, especially where spade labour is expensive. Assuming that the land is naturally fertile, manure will not be required before the trees are planted. Any support which they may require, and that will be beneficial to them, can be given afterwards in the form of top-dressings and mulchings; these will keep the best roots near the surface, thus ensuring well-ripened wood and a fertile habit.

In selecting the varieties, none but those with an established reputation as regards free-bearing should be planted, and of these the most suitable can nearly be counted on the fingers. Early kinds of Apples and Pears that can be marketed without storing will often yield the most profit. Plums, where the land suits them, are generally a profitable crop, and they come into bearing sooner than Apples and Pears. In a large plantation of fruit trees, of course a good selection will include both early and late kinds, as, although the latter involve more expense, and frequently there is a longer time to wait for a return of interest for capital expended, yet the crop brings in more ultimately. The store-rooms must be dry and frost-proof, and fruit keeps best in the dark, as the temperature is usually more uniform and steady under such conditions. I have known dark dry cellars used for the purpose of storing fruit, and they have answered remarkably well. In private gardens there are commonly many varieties grown that are not profitable, so far as bulk of crop is concerned; but such kinds generally possess some peculiarity of flavour that makes it desirable to continue their cultivation. The man who looks for profit, however, would soon be ruined if he indulged in fancies. A large proportion of our orchards contain far too many varieties. It is impossible to be too particular in the selection of proper sorts, and a few days or even weeks, if need be, would be profitably spent in visiting the gardens and orchards within a radius of ten miles of the intended orchard, to see the kinds most generally prosperous, and to gather all possible knowledge respecting them. The whole matter of success or failure hinges upon the best kinds to plant; and when once we have received the conviction that any particular kind does well in any given district, then in that district it should be planted by the hundred. For fruit growing on a large scale for profit I think the standard form, with a 6-ft. stem, is best; all other forms require more labour and skill in their management. Still some kinds of Pears do well as pyramids; Beurré de Capiaumont and Williams' Bon Chrétien, for instance, are especially fertile when not too closely pinched in. Treated as weeping pyramids they soon come into bearing, and their pruning or after-management gives but little trouble, as the heavy crops of fruit which they bear checks all tendency to over-luxuriance. In like manner some Apples are peculiarly fitted to form dwarf trees. Lord Suffield may be mentioned as a suitable subject for planting in beds of a hundred or more at only a moderate distance from each other. The kind begins to bear in a small state, and afterwards it bears so constantly that it seldom reaches a large size; therefore, to plant it wide apart would occasion a loss of space, unless the ground was occupied in addition with bush fruits. There is always a demand for Currants and Gooseberries, and they are not so liable to damage from bad weather as Raspberries or Strawberries, and as they generally yield a paying crop, every bit of space under tall standard trees should be planted with Red Currants and Red Gooseberries, as the demand for these colours is greater than that for others, with the exception of Black Currants; the latter is a profitable crop; indeed scarcely anything pays so well in damp corners; even if partially shaded by trees or buildings, they always thrive well.

The distances at which fruit trees should be planted from each other should vary according to kinds and soils, but a full grown standard tree of a free growing sort will occupy profitably a space of from 20 ft. to 24 ft. square. Dumelow's Seedling or Blenheim Orange Apples would require as much space, but Cox's Orange Pippin and Lord Suffield will be some time filling up two-thirds of that space. The same thing occurs in regard to Pears; those kinds that begin to fruit early, and bear crops annually, make less wood, and may consequently be planted closer together than others. Where all the space beneath or between is cropped with bush fruits, one may wait a little longer than they otherwise might be inclined to do for the top growth to fill up. Still any given tree can only occupy profitably a certain space, and, as some kinds will grow larger than others, it is wasteful to give the small trees as much room to grow in as the larger ones; therefore each kind of Apple, Pear, or Plum should be planted in beds or quarters by itself, both for convenience of allotting suitable space, and also for economising time when gathering the fruit.

The following are a few names of kinds that are good bearers in most places, but, as has been stated, local information should in all cases be obtained before planting largely:—Apples, Lord Suffield, Manks Codlin, Dumelow's Seedling, Blenheim Orange, Cox's

Orange Pippin, London Pippin, and Reinette du Canada. Pears—Hessel, Williams' Bon Chrétien, Williams' Duchesse de Angoulême, Beurré Diel, Knight's Monarch, Marie Louise, and Swan's Egg. Plums—Victoria, New Orleans, Magnum Bonum, Early Prolific, Diamond, and Golden Drop. Gooseberries—Red Warrington, Companion, Crown Bob, and London. Currant—Red Dutch, Black, Lee's Prolific, White Dutch.

E. HOBDAV.

CROPPING PEACH AND NECTARINE TREES.

THE majority of cultivators will, I think, agree with Mr. Cowburn's opinion (p. 424) as regards training, viz., that a line drawn between the two extremes is always the best, and I am certain that it is as applicable to cropping as to training. I have grown Peaches and Nectarines under both favourable and unfavourable conditions, and have seen many crops both light and heavy, but I can confidently assert that I never yet saw trees that would average ten fruits to the square foot. It could not possibly occur on a wall as there would not be space for large kinds like Noblesse to swell, as if the tree averaged ten fruits there must of necessity be some parts of it with twelve or fifteen to make up for the spaces occupied by main stems, leading shoots, &c., as no one ever yet saw a crop so equally and methodically distributed from base to summit as to be all alike; of course, on trellises one may crop on both sides, and it is by no means unusual to find ten fruits left to the square foot. I have, indeed, oftener erred myself in leaving too many than thinning sufficiently, and where I have drawn the line half way between what Mr. Cowburn and "J. S. W." consider a crop, and set the fruit out at the final thinning to three or four to the square foot, being guided, as "J. S. W." suggests, by the variety, I have had far the most valuable crop, as neither for the table nor for the market will quantity make up for quality, and the latter can only be secured by crops that the trees can finish perfectly.

Of course, if one were contemplating the removal of the trees after the crop is gathered it would be a different matter. Many experienced Peach growers would be satisfied with half the quantity of fruit which Mr. Cowburn calls a crop. I am at present planting a Peach house 50 ft. long, and shall be anxious to get as good a crop as possible; but it is so generally admitted amongst growers of Peaches and Nectarines that they do not answer to be gorged with rich manurial food like Vines, that one cannot well expect such an enormous strain to be borne with safety as that of a crop that would exceed in weight what is ever considered safe to put on a Vine, that will imbibe the richest of succulent food, and flourish on it. I am aware that there is a great difference between good and useful Peaches and the very best samples of the same kind that can be grown, and doubtless thinning the crop is sometimes carried to excess as well as leaving too heavy a crop; but I cannot believe that Mr. Cowburn's trees will maintain for many years such heavy crops as those recorded in *THE GARDEN*. If such a feat is possible, I must admit that what has been for years considered a good crop of Peaches or Nectarines must, by comparison with such results, be set down as little short of a failure.

J. GROOM.

Linton.

GROWING PEACHES ON THE EXTENSION SYSTEM.

IN corroboration of what "J. S. W." has, from time to time, said in your columns in favour of this system of training Peach trees, I may state that I this season saw at Brayton Hall a wonderful example of it in the shape of some Peach trees—maidens—which Mr. Hammond planted a few years since. They are already enormous trees, filling a great space with very fine fruit-bearing wood. On the old and barbarous system at one time practised, if not now in many places, it would have taken ten or twelve years to have built up such trees. Their stems were nearly as thick as a man's leg. I may also refer to a great many trees planted here in February, 1878, which, beyond being shortened back when planted, have not had a top cut off a twig since; some of them now are perfectly furnishing with wood spaces varying from 18 ft. by 14 ft. to 16 ft. by 12 ft., and they have carried a good crop of fruit this year.

D. THOMSON.

— Mr. Cowburn asked me (p. 372) for "information as to what is meant by extension," and he now complains that in answering him I illustrated the practice by comparing it with that delineated and described in the "Gardener's Assistant." It moreover appears that your correspondent did not require any information on the subject, for he knows both systems so well as to be able to tell us he "equally deprecates" both. That being so, I think it is my turn to ask a question or two from Mr. Cowburn. First, where did he try the "extension," the "restrictive," and the "something between the two" systems together, and what were the results of his experi-

ments that made him prefer the latter, which, let me say, I have less objection to myself? Secondly, I say that by the extension system in full you get a larger tree and more fruit in a given time than by any other method—that it does not interfere with the health or furnishing of the tree in any way, and that as much is proved by facts and experience. Is Mr. Cowburn prepared to meet this assertion with a direct negative, and substantiate the same by examples of practice? Answers to these questions will bring the matter to a direct issue, and that is what I desire. As to his assertion that Pears, Apples, and *Crataegus pyracantha*, &c., do not come under the same head, I have only to say that he is completely in error. The principle is the same exactly in both cases. What is a "cordon" but an extension-trained tree on a dwarf stock? The principle, when applied to Pears and Apples trained on the fan or horizontal system, consists in letting those limbs which are left extend at their extremities as fast as they will, never cutting them back at the winter pruning, as is recommended in most works on fruit culture. I call this "extension" to distinguish it; has Mr. Cowburn any other name for it? When the new walls enclosing the 6-acre kitchen garden at Thoresby Park were planted, Mr. Henderson trained his wall trees and espaliers on this extension system, and finer and more fruitful trees I never saw, nor any so large for their age, and they are there to be seen yet. As to Mr. Cowburn's ten good fruit to the square foot throughout I can only exclaim "Wonderful"! I do not expect ever to be able to produce a crop of "good" Peaches so thickly set on the tree as to touch each other, or very near it, nor do I ever intend to try. Ten "good" Peaches, but not what are reckoned extra fine, should at least cover 100 square inches, and as the interstices between the angles will nearly occupy the remaining 44 in. that make up the square foot, your readers may guess the rate of Mr. Cowburn's cropping, and wonder at the results.

J. S. W.

CLEARING PEACH TREES OF LEAVES.

THE practice of going over Peach trees in autumn with a light switch broom, or something of a similar character, that will remove the leaves that are nearly ready to fall on their own account, is often recommended and adopted both with trees under glass, and still more frequently in the case of such as are on open walls, the object assigned being to more fully expose the wood to the light and what little sun we happen to be favoured with when the season is so far advanced. But is the operation of any real benefit to the forthcoming crop or the trees in any way? This was a question that a good many years ago suggested itself to me, and, after reflection, I could not see of what benefit it could be, for it is a generally recognised belief that when the leaves of any tree have done their work and are ready to drop, the condition of the wood which has borne them, let it be satisfactory or otherwise, is beyond anything that can be done for it, so far as increasing its fruit-bearing capabilities is concerned. Take, for example, the Vine; if the wood is insufficiently ripened, not only when the leaves fall off, but if it is not fully hardened up when they begin to turn yellow, no exposure to light or sun, even with the aid of fire-heat, that I have seen tried has been of the slightest use. As left when the leaves have lost their power to further assist the wood, so it must remain.

Looking at the matter from this point of view, on several occasions, near a score of years back, when living further north, where Peaches do not in indifferent summers get so good a chance as they do further south, I tried the effect of removal by brushing off the leaves when they were in a condition to part from the wood. I did this with several examples of the same varieties, growing on the same wall with others that were left untouched, and in some cases I removed the leaves from one side of a tree and left those on the other to come off on their own accord. This I tried, as I have said, several seasons, but, just as I had anticipated, I could not see the least difference in the fruit produce of the ensuing summer between those which had their leaves all or partially removed and those untouched. The removal of leaves during the growing season has undoubtedly the effect of reducing the strength of the wood, and in the case of over-vigorous trees of any kind has an influence in diminishing strength proportionate with the extent to which disleafing is carried out. But this is a very different thing from expecting any effect as regards altering the condition of the wood and fruit buds already formed, and which, when the leaves are ready to fall, may be looked upon as beyond the influence of anything which the cultivator is able to do for them.

T. BAINES.

Swelling and Ripening of Pears.—At one time I was afraid that late Pears would be useless, but the following sorts have swelled up to a good useful size, viz., Marie Louise and Marie Louise d'Uccle, Olivier de Serres, Louise Bonne of Jersey, Beurré Diel, and Fondante d'Automne. These have been the best here.—J. C., *Farnborough*.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Hardy Pears.—In this northern district the fruiting spurs of many of the finer kinds of Pears were last winter so much injured by severe frost as to be quite black at the core, and consequently fruitless. Among those that withstood with impunity the vicissitudes of the abnormal period of frost and thaw which we experienced, none showed to more advantage than the old market garden favourite—Hessle. Of course, where fine fruit for table use is a desideratum, the sort just named would not prove of any great value; but where Pears are grown for profit, commend me to this variety. An extensive grower for market in this district informs me that out of 150 sorts of Pears planted for experiment, the Hessle and Marie Louise d'Uccle are the only sorts that withstood the severity of the winter with him; all the rest suffered from the black spot at the core of the fruit-spurs, while every tree of the sorts named bore fruit. Among Apples none do so well in the north as Hawthornden, which is a sure and certain cropper and an Apple of good quality.—TYNEDALE.

Grapes at Chiswick.—The friends and acquaintances of that excellent gardener, Mr. Barron, have been wondering whether a contemporary meant to be funny or complimentary when it published that ambiguous paragraph setting forth that Mr. Barron had managed to ripen the Grapes in the large Vinery at Chiswick by means of "fire-heat by day, and giving air judiciously added to the sun-heat, which the present open weather is affording!" Ripening Grapes by such means can hardly be considered a very wonderful circumstance, and we doubt if Mr. Barron is himself astonished at the result.—W.

Late Grapes.—The present season has been not only trying to the cultivator of Grapes up the period of ripening or colouring, but also as regards keeping them in good condition after they are ripe, as one hears of a more than usually heavy list of losses from mouldiness, which has this year set in much earlier than usual. This is doubtless attributable to the marked absence of sun-heat and excessive rainfall. Grapes have not been able to thoroughly ripen this year without a pretty constant assistance from artificial heat. I know that very fair samples of Hamburg and other thin-skinned Grapes may be grown in favourable seasons without fire-heat, but their keeping qualities are always doubtful, and after such a season as the present it is not at all singular that Grapes ripened in the moist stagnant atmosphere that has prevailed so long (where means have not been taken to counteract its effects) are suffering more than usual. In our late Vineries, even in this southern part of the kingdom, we have not been able to dispense with fire-heat since the Vines were started in spring; just enough heat has been kept in the pipes to maintain a buoyant atmosphere, so that air might be kept on continuously, and the fruit looks like keeping as long as we may wish to have it. For the latest supply we have fortunately a great help in good sorts that do keep well, and any one wishing for good Grapes in winter and spring must not omit Lady Downe's, Black and Kempsey Alicante, Gros Colman, and Barbarossa, black kinds; and Muscat of Alexandria and Calabrian Raisin, white sorts. If these are ripened in a light buoyant atmosphere by keeping up a gentle heat, there need be little fear, I apprehend, of the result as regards the fruit keeping.—J. G.

Pruning Damsons.—During the last few years the Damson crop has become much more important than formerly, and many thousands of trees are planted annually in this neighbourhood, principally as an outer or sheltering row to orchards of more tender fruits, and in many cases they even occupy the hedgerows. During the late exceptionally wet summer they have made exceedingly vigorous growth, the leading shoots being mostly 3 ft. and 4 ft. long; these will be cut down quite low at the winter-pruning, and all the small spray-like growths left intact, as the Damson is proved to require pretty hard pruning to get good crops of fine fruit; if allowed to run up unchecked with long loose growths, even the best kinds produce comparatively thin crops as a rule; but when stopped so as to throw the energy of the tree into the weaker bearing wood, they become densely furnished with fruit-buds. During the present season I have had the opportunity of seeing many hundreds of young bearing trees, where the fruit hung quite as thickly as in the case of ordinary bunches of Grapes, for the Crittenden or Cluster Damson, now so largely grown here, sets three or four fruits in a bunch, so that in gathering, the crop may be taken off in handfuls. As the present is a good time for pruning, I would recommend any one having Damson or Bullace trees that have been neglected in that respect to at once shorten them in considerably, as dwarf compact trees are preferable in every way to those left to grow wild. They will quickly become furnished with spray-like bearing wood, when a crop of this useful fruit will be almost a certainty.—JAMES GROOM, *Linton Park, Maidstone.*

Cleansing Fruit Trees.—Autumn is the best time to cleanse fruit trees, and indeed all plants, from scale and other insects. Now fruit trees can be handled with less liability of breaking buds and spurs than in the spring after the buds have begun to swell, and the work will be as effective now as then. Use strong soapsuds. Apply it with a stiff brush; and do not confine the washing to the trunk, but go over all the small branches and everywhere on the tree where scale is found.—W.

Currant La Versailles.—This being the season when most people are planting fruit trees, it may not be out of place to add a note in favour of this Currant. All who want a showy Red Currant for dessert would do well to add this to their list. It is very large and of good colour and but little later than other early sorts. From some young trees of it this summer we had some of the largest fruit which I ever saw.—J. C. F.

Root-pruning Fruit Trees.—Root-pruning with the view of getting trees into a bearing state, will, I think, be admitted by many to be a waste of time and no gain, especially in the case of trees planted in heavy wet ground with a bad subsoil. Under such circumstances it is impossible to root-prune an ordinary sized tree without giving it a check that will prevent it from bearing a crop the following season; and in some cases, I have seen a tree after being lifted and root-pruned that did not show any signs of growth till autumn, when it commenced to grow and blossom, thus destroying all chance of fruit bearing for another year. Where trees are growing in light free soil the case is different, as they then make more fibry roots, quite unlike the long bare roots produced in heavy soil; therefore in light soils root-pruning can be carried on without giving the trees such a check as they would experience in heavy ground. During these last few years we have been lifting a portion of our standard and wall trees every season, and I may state that we have a heavy wet soil to deal with; therefore before replanting we cut a main drain about 8 ft. from the wall, and in digging large pits for the trees, we cut two cross drains through the bottom of each pit, and run them into the main drain. We then cover the bottom of the pits with 6 in. of rough stones, and in some cases we use ashes, finishing with 1 in. of sand, and making all firm. We then commence to make up the pit with its natural soil, mixing it well as we proceed with sand, lime rubbish, and manure, and when half filled, another layer of sand is placed in it for the roots of the tree to rest on; then the pit was finished with the compost already mentioned. In this manner we have been successful in getting Apricot and Cherry trees to bear well, and over 100 ft. of a south wall border, planted with Peach trees, have just been treated in the same way. Hitherto neither Cherry, Apricot, nor Peach trees—although the best quarters have been allotted to them—have ever produced fruit that would compensate for nailing them to the walls. We had occasion to remove a Pear tree the other day that was planted and treated a few years ago in the manner just described; it had quite a mass of fine healthy young roots, close to the wall and not far from the surface, and to all appearance would have kept in a good bearing condition for many years without being disturbed.—D. MURRAY, *Chiswick Gardens.*

Root-pruning.—I should not, as "J. S. W." suggests (p. 372), box off orchard trees; but, if I wanted to grow any special kind of wall or trained tree, I should rather curtail the root-space at first than have to endure biennial re-lifting, excavating, and all its attendant labour, simply because I never yet found such work to be remunerative. In this matter, however, every one must be guided by local circumstances. Many advocate root-pruning on the ground that it checks growth and promotes the ripening of the wood. That it will stop further growth I am well aware, but, as regards assisting ripening, I fail to see how a tree in a flagging, half-dead condition is to ripen its wood so well as if it had received no check. Root-pruning is simply a case of drying off *v.* ripening off. My observations were intended to encourage the general reader to follow the example so profitably set in Kent to plant fruit trees largely of whatever kinds succeeded best in their own neighbourhoods. The allusion to the light, warm lands of the eastern and western counties was not likely to lead any one less imaginative than "J. S. W." to suppose that I considered Durham, Yorkshire, and the west of Scotland equal to Kent as regards fruit culture, but I know from a long residence in the eastern counties that the land is lighter and warmer than that of Kent, and the climate quite as good; and the western counties are certainly superior to the east for fruit culture. I could pick out quite as extreme cases in Kent as any "J. S. W." mentions; but here, if the land is ever so stiff, even bordering on clay, Black Currants are generally a lucrative crop, while Apples, Pears, and Plums are not very particular, provided the soil is strong enough, and where too light, poor, and stony for these, the Cherry thrives and proves remunerative. Other counties might be profitably planted with fruit trees as well as Kent. What we want is to shake off the notion that fruit-growing is a local Kentish industry.—J. G.

TREES, SHRUBS, AND WOODLANDS.

CRATEGUS PYRACANTHA IN TOWNS.

Few plants appear to thrive better in the confined quarters of a thickly-populated town than this. Its vigorous and enduring character enables it to flourish in situations where most kinds of wall plants would either perish, or at the best linger out a miserable existence. It appears, indeed, to yield a richer harvest of bright, cheerful berries where the roots are somewhat cramped for space, the soil poor and liable to get very dry in the summer season, than where the roots can ramble freely in a rich, moist soil. The best berried specimen I ever saw was growing in a confined gravelled space in a thickly-populated town; it was thickly-covered with berries, and brightened up the narrow, dingy street most effectively during the winter months. Those who may have a piece of wall to cover in a situation unfavourable to wall climbers generally, cannot do better than plant the *Pyracantha*. It is neat in habit, may easily be kept within bounds, and will give satisfaction where scarcely any other plant will succeed. There is one point in its culture which is often overlooked, but which is of the highest importance. The tree should be gone over early in the spring of each year; where the branches are crowded, all weak, useless growth should be cut out, and the strong shoots laid in at regular intervals, so that sun and air may ripen the wood, without which the crop of berries will be but scanty.

It often occurs that specimens that have borne well in a young state produce no berries when they attain large dimensions, and many wonder that this should be the case. It would, however, on examination, be found that the branches have become so crowded and intermingled as to prevent their attaining the maturity indispensable to the production of a crop of fruit, for it should be remembered that the rules laid down for fruit trees generally apply to this *Crægus*. Every branch and leaf must, as far as possible, be exposed to the influence of the sun's rays; and this result can only be attained by so training the shoots that each one is free from, and does not unduly crowd, its neighbour. I do not know of any other plant which better repays careful, intelligent training, and which at the same time yields so little satisfaction when unattended to in this respect. Not only does a regular distribution of the shoots improve the general appearance of the specimen, but the berries are in this way brought freely into view, and when each branch is studded at regular intervals with clusters of fruit, a large plant presents such a rich glowing mass of colour as is really not obtainable in the open air by any other means during the dull months of the year.

J. CORNHILL.

Hydrangea hortensis cyanoclada.—This is a handsome and distinct variety, and one which yields large heads of bright blue flowers. It is much the best blue-flowered *Hydrangea*, the colour being good. The leaves are of stout leathery texture and dark green. The stems are peculiarly black, and the leaf-stalks are also dark-coloured. This variety originated in Germany.

Leycesteria formosa.—This useful shrub has been growing here in a mixed shrubbery for more than thirty years, sheltered only by other shrubs and trees. Seedlings spring up in all directions, and bloom in a very young state, a fact which proves that it is tolerably hardy. Very strong shoots are best cut clean out, or very much shortened, no other pruning being necessary. I find it very useful in filling a vase mixed with *Fuchsias* of different colours and other flowers.—W. D., *Wierton, near Maidstone*.

Large Chestnut Tree at Tortworth.—The following are the dimensions of the famous Chestnut tree here, viz.:—Circumference, 3 ft. from the ground, 49 ft.; spread of branches from north to south, 86 ft.; from east to west, 88 ft. These measurements were taken by myself about three weeks ago, and I can vouch for their correctness.—THOMAS SHINGLES.

The Maiden-hair Tree in Fruit.—"Prof. Sargent communicates the following to the 'Gardener's Monthly':—"One of the *Salisburias*, planted some twenty years ago in the grounds of the Kentucky Military Institute, at Farmdale, and now 30 ft. high, proves to be a female, and has fruited this year for the first time. I am not aware that this interesting tree has fruited before in the United States, while in Europe specimens known to be female are still very rare. Its fleshy outer covering exhales an extremely disagreeable smell of rancid butter, but the kernel is excellent, with the flavour of Filberts, although more delicate. In Japan the kernels have reputed digestive qualities, and are very generally served as dessert. The cultivation of the 'Ginkgo' for its fruit is one of the possibilities of American horticulture, and is, perhaps, worth consideration." [We saw a very fine tree of it in the Vienna garden a

year ago, laden with yellow berry-like fruit, quite distinct, and even beautiful.]

Variegated Elms.—The broad and narrow-leaved variegated Elms should be accorded prominent positions in collections of hardy trees and shrubs. They are especially suitable for planting in shrubberies amongst Conifers and robust-growing evergreens, to which their clear fresh variegation affords a charming contrast. The small-leaved kind especially is very effective when thus employed; its neat, rather compact habit rendering it one of the best of variegated trees for small gardens. The variety named *Russleyana* is also an interesting and pretty kind, with small golden-hued leaves; it is but seldom seen, but is well adapted for planting in gardens of limited dimensions. Variegated forms of hardy trees and shrubs should be largely employed where there are extensive plantations and shrubberies; for often these latter consist of masses of common Laurels, *Rhododendrons*, *Thujas*, &c., which, although well enough in their way, are yet apt, when not lightened up and relieved by other forms of vegetation, to become monotonous and uninteresting.—J. CORNHILL.

Profits of Tree-planting.—It has been calculated that the tree thinnings of an acre of land worth only from 5s. to 10s. per acre, but planted with a mixture of Larch, Beech, Pine, Hazel, Birch, and Oak—the latter with a view to the growth of navy timber or trees of large size for building and other purposes—will at the end of from ten to fifteen years, according to local circumstances, repay the average expenses of planting, rent, and management during that period, together with compound interest at five per cent; and the profits of future falls may be estimated as follows:—In thirteen years, or at twenty-three years' growth, £24 10s. per acre; in thirteen years more, or at thirty-six years' growth, £39 per acre. After that period a triennial profit of about £12 per acre, until the Oak is fit for navy or other purposes, for which timber of first-class quality is required, when the final clearance may be expected to fetch from £200 to £250 per acre.—A. J. B.

The Sugar Maple.—This tree is found wild in Canada near the 48° of latitude, but is most abundant between the 46° and 43°. It flourishes best in a rich humid soil. In February or March, while the ground is covered with snow, the tree is bored to the depth of $\frac{1}{2}$ in. within the wood, with an augur about $\frac{3}{4}$ in. in diameter, and in an obliquely ascending direction, upon the south side of the tree, 18 in. or 20 in. from the ground. Two holes are made 4 in. or 5 in. apart. Tubes from 8 in. to 10 in. long, made of Elder or Sumach, are inserted to conduct the sap into troughs, which are capable of containing from two to three gallons each. The sap flows for about six weeks; four gallons yield 1 lb. of sugar, and from 2 lb. to 4 lb. is the produce of a single tree. The sap is boiled in sheds erected in convenient spots. Three persons can attend to 250 trees, which sometimes yield 1000 lb. of sugar. At the time when 80,000,000 lb. of sugar were calculated to be used per annum in the United States, it was estimated that one-eighth part, or 10,000,000 was furnished by the Sugar Maple.—B.

Furze as a Hedge Plant.—The common Furze does not generally attain its full size until four years old, and to make the most of it for lime burning and such like purposes it should not be cut oftener. It will upon poor land generally make a return of from 15s. to 20s. per acre. The soils best adapted to its growth are dry, sandy, or gravelly ones. It does not flourish well upon thin Heath or damp clay soils. Upon its favourite soils it makes a good hedge with proper management. The difficulty is to keep it thick enough for fencing purposes near the ground. By sowing it in three rows or tiers upon a bank, and afterwards cutting the first near the surface, allowing the second to attain a height of 2 ft. or upwards, and the third or uppermost row to grow to its full height, an almost impenetrable fence may be obtained. Duhamel in France, Evelyn in England, and Dr. Anderson in Scotland have extolled its merits as a fodder plant.—A.

Contrasts of Foliage.—Few better examples are to be met with than that afforded by the American Tulip Tree (*Liriodendron tulipiferum*) and the American Oaks, whose deep crimson shades at this season of the year contrast finely with the bright yellow of the leaves of the former tree.—J.

The Plane Tree.—The giant bulk and extraordinary beauty of the Oriental Plane Tree (*Platanus orientalis*) have made it in all ages an object of marked attention. Every classical reader is aware of the favour with which it was regarded by the Greeks and Romans, the latter of whom carried their admiration of this beautiful tree so far as occasionally to irrigate it with wine. The Turks in later days planted one at the birth of a son. In the court of the Seraglio existed a venerable specimen, planted by Mahomet the Second after the conquest of Constantinople, in commemoration of the birth of his son, Bajazet the Second. Forty years ago it was described as 50 ft. in girth. Another at Buyukders, on the Bosphorus, is described as

45 yards in circumference, but consisting of fourteen large trees growing from the same root-stock, coalescing near the ground, but at a short distance from it diverging into distinct trunks.—A. J. B.

Cratægus pyracantha crenulata.—This is now an object of great beauty on one of the walls at Chiswick. It is represented by a large and freely grown specimen literally clothed with berries that crowd the main shoots, and which are of a deeper colour than those of the common *C. pyracantha*. These will be in beauty all through the winter, but it has been found necessary to net the plant, as the birds have found out the berries, and are very fond of eating them.—R. D.

Yew Hedges.—One of the finest examples of a Yew hedge with which we have ever met is at Albury Park, the Duke of Northumberland's Surrey residence. It divides the kitchen garden from a portion of the pleasure-grounds, and runs in a perfectly straight line some 448 yards in length; it has, we understand, been planted 203 years. The individual plants have attained the size of good-sized trees; the top branches, if at all, had for a long time been little interfered with, and had extended a long way over the pleasure-ground side. Some years ago the bottom was getting thin, and showed signs of dying off. Mr. Kemp, the gardener here for over twenty years, set to work to remedy this, and had all these bottom branches cut in close to the main stems, at the same time shortening the upper ones to an extent that made 300 to 400 faggots, the result being that all the lower part broke freely, and as it is now kept clipped close in, presents an even wall-like surface to a height of 7 ft. Above this the upper growth has been allowed to extend at will; it thus forms a unique verandah-like densely covered walk, one of the most delightful promenades on a hot day, and being open on one side, there is plenty of light, and an absence of the smothering sensation often present under archways covered closely in with dense growth. This grand old hedge at Albury affords a lesson worth the consideration of those who have screens or hedges of this tree. We often hear complaints of Yew when thus employed after a lapse of years dying off more or less in places without any perceptible cause, but, although generally unobserved, we have no doubt that previous to death gradually less and less annual growth had been made, the plants ultimately succumbing to the weakening influence of over-restriction. Death in this way usually occurs when the hedge is kept clipped so as to allow very little breadth, for we have never seen it happen where enough width existed, even when kept low.—"Journal of Forestry."

Hydrangea paniculata grandiflora as a Standard.—A good deal is said now-a-days about the attractiveness of the standard form of this *Hydrangea*. The oddity of the form doubtless constitutes one of its attractions, but another may certainly be found in the fact that this form of growth brings out the effect of the flowers more prominently. It prevents, likewise, both foliage and flowers from being trailed and beaten into the ground. One objection made against the standard form is the crooked shape which the stem generally insists on assuming. Viewed in another way, moreover, the standard form is unnatural—not adapted to exhibit the true habit of the plant grown under favourable conditions. If, therefore, the standard form is employed at all, a short or low stem should be accepted as the most practical and appropriate to the so-called tree *Hydrangea paniculata grandiflora*.—*Rural New Yorker*.

Pruning Fir Trees.—The best way to remove the long bolt-like insertions which the dead branches of Fir trees leave upon their trunks is to select a frosty day early in the winter, and go through the plantations armed with a short stout bludgeon, first gently loosening the stumps of these dead branches, and afterwards dealing them a smart blow sufficient to break them off inside the bole, when they can be easily withdrawn. But when the lower branches are dying back, and decay has not yet reached the trunk, they may be pruned off close in the same way as hardwoods. As the branches of these trees grow in whorls or tiers, so that the weakness arising from dead or cork knots is more concentrated or localised than in hardwood trees, it becomes the more necessary to attend to the early removal of dying branches, so that as the trees increase in diametric bulk the wounds may heal over, and the continuity of the grain be restored.—A. J. B.

Ivy on the Stems of Lawn and Pleasure Ground

Trees.—It is often supposed, and with justice, that Ivy is a dangerous interloper amongst the branches of trees; but it is so very beautiful to see the trunks of trees covered with the handsome leaves of this best of evergreen climbers that very much more may be done and should be done to show it. There is no way in which more graceful beauty can be added to many lawns or other grounds bare of trees than adorning their trunks with the different kinds of Ivies. It is quite easy to keep them within control so that they shall not mount up and choke the tree. To cover the trunks to a height of 12 ft. or 15 ft. with the glistening foliage of this charming plant is a delightful improvement. Whole collections of Ivy might be grown in this country successfully in this way, and much more satisfactorily than on walls. A little care would be necessary in culture if they are to do no harm and look well. The Ivy would form a kind of carpet, so to speak, on the trunk, and should be encouraged to do so by annual pinching. At the same time it might be reduced at the top in case of getting too vigorous. Some of the small-leaved kinds look very beautiful on tree trunks, and so do the large ones by contrast with them. Our illustration shows, imperfectly it is true, several trees covered with Ivy in the Champs Elysées. The trees do not appear to suffer from it in the least, and the effect is at all times charming.



Ivy on the Stems of Trees.

Cistuses or Rock Roses.—In last week's GARDEN (p. 419) are a few remarks about Cistuses or Rock Roses, in which the writer speaks as though *Cistus cypricus* is only a variety of *C. ladaniferus*, whereas they are totally distinct plants. *C. cypricus*, or common Gum Cistus, is the one which is now erroneously grown and sold at nurseries as *C. ladaniferus*, whereas *C. ladaniferus* is quite distinct. Sweet in his "Cistineæ" remarks "This beautiful plant must not be confused with the plant generally known by the name of Gum Cistus in the gardens, and also confounded with this in Curtis's "Botanical Magazine," t. 112; the plant there figured is *C. cypricus*, of M. de Candolle's "Prodromus," and differs from the present in bearing three or more flowers on each peduncle; the leaves are also petiolate, and the capsules only five-locular—differences which readily distinguish it from our plant, which, we believe, is the largest flowered species of the genus. It is not so hardy as *C. cypricus*, and will not survive our winters in the open air, except very mild ones." From these remarks we see that *C. cypricus* has three or more flowers on each stem, whereas *C. ladaniferus* has only a solitary one, which

is very large. There are two forms of this, viz., *albiflorus*, which has large pure white flowers, and *maculatus* is white with a large blotch at the base of each petal.—R. POTTER.

Sprouting Locust Seed.—The practice of scalding the seed of the common Locust to induce germination is well known. A correspondent states that he could never make more than one in twenty grow before he adopted this process. After the hot water is applied, a portion of the seeds are found double in size; these are selected and planted, and the process repeated several times till all or nearly all are made to germinate. Without this treatment the seed might lie in the ground for a century.

LEAFLETS.

It is rarely now-a-days that a really good book on horticulture is produced; therefore, I have all the more thoroughly enjoyed turning over Leroy's excellent "*Dictionnaire de Pomologie*," which is unmistakably a great book and a fitting monument of a well-spent life. The subject, style, and treatment are in all ways excellent. In plan, execution, and practical information the work is far before anything attempted on fruit in this country. To translate such a work would be a very onerous task, and it is scarcely to be desired, unless some one like Mr. Barron, at Chiswick, would undertake to adapt it to our own wants, and graft English experience upon it. Happily the information is easily accessible in French.

Among fruits we have little novelty this year—a year in which our commonest hardy fruits have failed to ripen—but good judges speak well of Belle Julie, an October and November Pear, which is all the more valuable from coming out so well this bad season. It may be added that it is a very bad year for naming fruits, as many of the kinds have not attained their usual proportions, colour, or flavour.

I hear that many of the Peach trees in the open air at Goodwood are dead or dying, owing to the cold, wet, sunless summer which we have had. The same fatality has also occurred in other places, a circumstance which has a depressing influence to those who love to see the Peach well grown in the open air. In ordinary times the Peach suffers a good deal in inland and cold districts, and the fact is that it is a tender tree, and one which, when grown out-of-doors on walls, requires a little more protection and attention than it generally gets to save it from the winter and spring severities; but when the destructive cold comes in June, as this year, one is driven to despair of outdoor culture.

A great divergence of taste is exhibited on the subject of "button holes." Some noble and enthusiastic patrons of horticulture wear these every day in the year, and have them sent after them by post wherever they go. They are of the commonly approved pattern, and usually consist of one large flower, of overpowering odour, flattened out to its greatest diameter, backed with Fern, and attached to an Oak-leaved Pelargonium leaf, nearly as large as the lapet of a dress coat. Considerable engineering skill is exhibited in the construction of these ornaments of the person, wire is not spared, and the weight of that alone would handicap the wearer in a race. I have seen a lady prepare a pretty contrast to these by plucking a single Rose-bud off the tree, and placing it in a three-lobed Rose-leaf from the same bush, and of other equally simple materials arranged without wire.

It is advised, I see, to extend tree planting on waste lands, in order to compensate our agricultural losses, and no doubt the advice will be followed by landowners who have often a hobby in that direction. It might be well to enquire first, however, whether an extension of our forest area is likely to improve our already dripping climate. I suppose it is proved beyond a doubt that trees increase the rainfall, and it is questionable therefore if any extension of our woodlands is desirable. I doubt if any other country in Europe is so evenly and well furnished with woods as our own, or has such a copious and evenly distributed share of the rainfall. Farmers grumble already at the unnecessary quantity of hedgerow timber in their fields, and would advise cutting down instead of planting, if they had their will. It can hardly be doubted that a reduction of our forest lands would give us a drier climate.

Although a disciple of Mr. Darwin myself, at least, to a very great extent, I fear that a good deal of speculation connected with his theories is extremely doubtful science—the insect-eating plant theory for example. I was going through Mr. Bull's house the other

day, at Chelsea, and saw therein numbers of the Pitcher Plants very seriously injured instead of "nourished" by the flies that entered the pitchers. The common bluebottle enters and dies in the pitcher; soon after the part immediately around where the flies rest decays; eventually this decay spreads and kills the leaf or Pitcher. Here there are numerous instances of this state of things, and they show the poisonous effect of the decaying flies on the sensitive surface of the leaf. The loss is a very serious one, even although the greatest pains are taken to exclude the flies from the house. So much for insect-eating plants. For my own part I never could see anything more remarkable in a plant absorbing animal matter by one surface than another—by the stem than by the root. The feeble illogical writings we have seen on insect-eating plants are certainly no gain to knowledge.

Referring to the Cardinal-flowers mentioned last week, I find that Mr. Bull, of Chelsea, sent out a great many valuable varieties about fourteen years ago, and that most of them now are probably lost to cultivation. A sad catalogue could be made of plants thus lost; species one may hope to find sometime in a wild state, but varieties are, in many cases, doubtless wholly gone.

I find Mr. Barron, of Chiswick, to have the same opinion as to the Chasselas Grape as that which I expressed last week, viz., that it is the most grateful of all kinds. He also speaks very highly of Gros Maroc, a Grape which I believe is now in fruit in Mr. Rivers's collection at Sawbridgeworth.

Mr. R. Harrison Weir tells me that he has succeeded in ripening the Champion Muscat Grape in a ground Vinery. It is probable that sometimes success would be obtained in these little contrivances when the fruit might fail in larger structures. He praises this Grape very much, and says he has been most successful with it in hothouses, cool houses, orchard houses, and ground Vineries.

Mr. Shirley Hibberd shows his versatility once more by attacking the water question. He thinks, and with good reason, that it might be simplified very much by people carefully collecting and storing the water which falls on their houses. Given a clean surface to receive it, and perfectly clean storage tanks, I can conceive no plan more excellent than having a good supply of water, which might be without a trace of impurity. His pamphlet is published by Effingham Wilson, of the Royal Exchange.

I hear that that noted traveller and author, Sir Samuel Baker, now or lately in our new possession, the Island of Cyprus, considers the Grapes grown in some parts of the island to be quite equal to our English hothouse Grapes, which does not speak ill of that much abused climate.

Mr. Henry Trimen, of the British Museum, has been appointed Director of the Botanic Gardens, Ceylon. The authorities are to be congratulated on obtaining as successor to Dr. Thwaites and Dr. Gardner, a thorough botanist, and one to whom the very important charge in question may safely be trusted. In such a happy garden isle the botanic garden must be a paradise as regards plants, and we fancy a visit to Dr. Trimen in Peradeniya will be even more pleasant than it was in the stately building in Bloomsbury.

I hope a good man will get the Epping appointment, and one in all ways fitted for it. Unhappily, these City Corporation appointments are often supposed to be influenced by jobbery. The place is one of those which should go to a tried man brought up to the forestry and nobler phases of gardening. Epping Forest properly managed and planted with perfectly hardy trees and shrubs only, would be a national garden in an higher sense than anything I know of at present.

I forget who was responsible for glazing the big Fernery at Kew with glass of a dark bottle-green, but the thing is a complete mistake. It does nothing in the hot summer which could not be effected by other and simpler means, and is injurious to the plants throughout three parts of the year. The countenances of the young men in this structure form an interesting if not very agreeable study—all as green as a dying Fern.

"Good natural methods of teaching—more attention to public gardening—would do much to instruct the people properly. Why should not (as a writer in the *Country Gentleman* remarks) the Geneva cemetery be a scientifically arranged arboretum and herbaraceous ground, with the plants grouped after the conspectus of alliances in Bentham & Hooker's *Genera Plantarum*, for instance?

Can any one tell me?" Yes, the probable reason is, my friend, that nobody in your neighbourhood had the power to do a very foolish thing. Books may be made thus—not beautiful or instructive gardens, and for reasons that have been stated often in *THE GARDEN*. Have all the beautiful and distinct things you can, and place them where they will grow best, and how they may look most beautiful.

The state of the great Palm house at Kew is at present thoroughly satisfactory. Considering the difficulties of the very artificial cultivation therein carried on it is surprising what fine effects are obtained. A good plan has been the covering of the borders with Ferns and various low-growing plants, and the training of a variety of graceful plants up the stems of the Palms and other large subjects. Indeed, there is scarcely anything to be desired unless it be the concealing of the pots at the edges of the beds. The narrow box filled with Moss does not conceal them, it only shows a stiff and poor attempt to do so.

Referring to the new garden at St. Paul's, the *Graphic* says: "The change, however, though so desirable, has been a costly one, no less than £5000 having been spent in making the alterations and additions; and the outlay necessary to keep the gardens in order will, it is thought, exceed £400 a year. This to many will naturally appear a very large sum, but it is said that those who understand such matters do not consider it exorbitant." Well, it does seem to me that the sum is exorbitant, and if this sum was spent wholly in gardening it is simply scandalous. It is lamentable that there is a good deal of what one would not like to apply a name to in the various efforts made to improve the public gardens of London. Of course anybody who knows anything about the matter must know that very few trees will grow round St. Paul's, and these not expensive ones. In addition to trees, all the place demanded could not be very costly. The finest gardens in London cost very little to make and very little to keep. Such, for example, as Berkeley Square. The planting of evergreens round St. Paul's, to perish in a year or two, is bad City gardening. The worst of it is that this waste of means, while it may benefit a few individuals, really eats up the force that might be employed more profitably for the embellishment of the many spaces yet in London that require planting.

A correspondent writes: "I have just returned from Scilly and Cornwall, where I have been taking my holiday. What a fine place Tresco Abbey is! I had a great treat there; I found several *Agaves* 25 ft. high in flower, and in the open air such plants as *Dolichos lignosus*, *Lapageria rosea*, *Rhynchospermum jasminoides*, and, in fact, a whole host of New Holland plants, such as *Dicksonia antarctica*, *Alsophila excelsa*, *Cyathea medullaris* and *dealbata*, just now only slightly protected; also *Escallonia montevidensis*, *Pittosporum Tobira* (with white scented flowers), *Acacias* full of bud, and the true *Dracena indivisa*, with beautifully striped leaves. Rockwork is a very prominent feature there, and one of which the late Mr. Augustus Smith was very fond. *Banksias*, and indeed many plants not common elsewhere are luxuriating there; *Brugmansia sanguinea*, arborea, lutea, and Knighti look well, and of *Phormium tenax* there are quite thickets."

I call the following obituary blossom from a contemporary: "Recently, Mr. George Gordon, A.L.S., for many years connected with the gardens of the R.H.S. at Chiswick, and author of the 'Pinetum.' Although a man of experience and good judgment, and possessing a very extensive knowledge of trees, he had long ceased to be in any way interesting, either to those who knew him personally or those who knew him only by his labours and associations. The truth is, he was so morose, reserved, and wanting in all that constitutes an agreeable sample of humanity, that long ere he parted from the world he was almost completely forgotten." So we have not one ghoul-critic of poor Gordon, but two. If such things are said unwittingly, it were surely as well to say them while the person to whom they refer is alive. As a friend writes, "throwing mud at a corpse is dreary work."

I bought the other day at Warren's shop, in Jermyn Street, what was said to be an Australian Apple, and it is the first I have seen in a London fruit shop. It is very like the Wellington when in perfect condition. It came packed in a long box in Oat husks, quite different from American packing, and free from bruise, such as the American fruits often have. The flavour smacked a little of the packing material, but the flesh was perfect. With the increase of fruit culture throughout the world, our Apple supplies will some day no doubt be continuous throughout the year. New Zealand or Tasmania ought surely to equal or beat America, and they might supply us at a different season.

A friend writes as follows: "'Leaflets,'" he says, "is a fresh and workable idea—very comprehensive, makes a place for the wider phases of garden knowledge, and will be of interest to many if really well done. I observe that the gardening papers generally are crucibles in which thoughts too often become molten to a dead level. If gardeners would but learn to write as knowingly and lovingly of their plants as Buffon wrote on animals and Michelet wrote on birds, readers might be comforted and cheered instead of wearied. All this is difficult to be brought about, but a 'gossipy' style can often be made to do duty for a really learned and original one. Perhaps the best of all ways of writing of plants for gardeners to adopt is to say as much as they know of the plant in as little space as possible. They would thus go straight to their mark. 'Wobbling' is the bane of horticulturists when they take to the pen, and, perhaps, learning how not to 'wobble' is the great end of all learning." JUSTICIA.

EVERLASTING FLOWERS AND GRASSES.

THE scarcity of freshly cut flowers during the dull season of the year, and the increasing inherent desire for floral embellishment, particularly at Christmas time, has led to the development of an enormous trade in preserved flowers and Grasses, and the bright hues with which they are dyed (though in some instances unnatural), and their elegant appearance render them a capital substitute for fresh blossoms. This demand has not only been the means of increasing the extent of the trade as regards quantity, but every available source has been laid under contribution in order to bring into requisition as much variety as possible, and though there is already a great number of subjects employed, there are probably many others which could be advantageously introduced for the purpose. An adequate idea of the extent of this branch of industry may be formed by a visit to the extensive factories and warehouses in the immediate vicinity of Covent Garden Market, belonging to Messrs. Hooper & Co. Here may be seen in operation the various processes to which the material is subjected, from the cleaning, bleaching, dyeing, and drying rooms to the commodious workrooms, wherein are employed scores of persons who manipulate the flowers and Grasses into bouquets and other devices with remarkable artistic skill. The greatest demand for these flowers is towards the close of the year, and the enormous number required of bouquets alone is almost incredible. They amount to more than 100,000 a season, and a ready market for them is found in the great manufacturing centres.

The flowers and Grasses employed for this purpose are grown chiefly on the Continent, where a large extent of land is devoted to the production of these alone, from whence immense quantities are sent to this country. Of flowers, the majority consist of species of the vast family of Composites, and chiefly those on which the flowers are enveloped in scale-like leaves of a dry chaffy character, these being very persistent and retain their colour a long time; hence they are termed "everlasting." Amongst these the well-known *Helichrysum bracteatum*, which is a fine ornamental annual, is largely used, its flowers of varied hues being admirably adapted for the purpose. The pretty yellow-flowered *H. orientale*, too, is largely grown, and constitutes the French *immortelle*; likewise *H. margaritaceum*, *H. foetidum*, and *H. compositum*. The *Xeranthemums*, too, with their silvery-white flower-heads, the blue and white *Catananches*, the pretty pink *Acrocliniums* and *Rhodanthes*, the white *Ammobiums*, *Gnaphaliums*, and others, all find a place in these winter bouquets. Various kinds of *Statice* are also made use of, such as *S. sinuata*, *S. Bonduellii*, *S. scoparia*, *S. Limonium*, and other sorts, and the appearance of the numerous tiny flowers on intricately branching flower-stems render them very elegant in combination with others. The leaves also of the Silver Tree (*Leucadendron argenteum*) is also largely used in the composition of crosses, wreaths, &c., and their silky-white surfaces have a very pretty appearance when intermixed with flowers.

Besides flowers which are dried naturally, there are many other kinds dried admirably by a particular process, so as to preserve their forms and colour. These include Roses, Pansies, Carnations, *Sanvitalias*, Asters, and various others; and the effect which they produce when skillfully arranged with others is very pleasing and scarcely less inferior to freshly gathered specimens, as far as appearance is concerned.

The Grasses comprise a great bulk of the trade; those mostly used are the feathery *Stipa pennata* (which is imported from South Europe by the ton), the Hare's-tail Grass (*Lagurus ovatus*), the various kinds of Quiver Grass, the elegant *Agrostis pulchella* and *A. nebulosa*, *Uniola paniculata*, *Bromus briziformis*, *Melica altissima* and *M. ciliata*, various *Avenas*, *Pennisetum longistylum*, and last, but not least, the splendid plumes of the Pampas Grass, *Arundo conspicua*, and *Andropogon formosus*, which is obtained in large quantities from Florida.

Another important branch of business that is carried on in this establishment, but which does not come within the scope of our present remarks, is the manufacture of artificial flowers, and also of porcelain *concomres*, for mortuary purposes, which of late years have come into public favour. In the case of the artificial plants and flowers, there is in many instances a remarkably correct imitation of nature, whilst in others it requires a considerable stretch of imagination to identify them with the plants they are supposed to represent. Begonias, Caladiums, Aralias, Dracenas, and fine-foliaged plants are the happiest productions in this way, and they are certainly very artistically designed. W. G.

THE INDOOR GARDEN.

FLOWERING FERNS.

(ANEMIA.)

SEVERAL genera of Ferns are characterised by having their spores disposed in spiked or branched clusters on separate parts of the same plant, either attached to fronds with barren leafy segments, or upon specially adapted fronds, whose leafy portion is almost entirely absorbed in the production of spores. Though the colours these clusters assume are never very showy, being either green, yellow, or brown, yet they bear such a close resemblance to the inflorescence of flowering plants, that this singular arrangement has given rise to the popular name of Flowering Ferns. The *Osmundas*, *Onocleas*, *Acrostichums*, and *Anemias* are among the best known Ferns which exhibit this peculiar structure. The genus *Anemia*, into which the genera *Anemidietyon* and *Coptophyllum* have been sunk—the former differing from the true *Anemias* by its reticulated venation, and the latter by its distinct barren and fertile fronds—contains upwards of thirty good species and several well-marked varieties, which are chiefly confined to Tropical America, only three being found in the Eastern Hemisphere, viz., *A. Dregana* in South Africa, *A. Wightiana* in Hindostan, and *A. Schimperiana* in Abyssinia. The two latter are said to be varieties of the variable species *A. tomentosa*, described at some length below.

The annexed figures will give a clear idea of the structure common to the whole genus, exclusive of *Coptophyllum*, alluded to above. The fertile fronds represented are seen to be divided into three parts, the leafy portion of which is exactly similar to a normal barren frond, consisting of several opposite pinnae, decreasing in size upwards. Below the lowest pair the fertile divisions originate, and rise perpendicularly when the frond is in its natural position; the upper portion of these on examination is found to consist of several deeply-incised pinnae, with their leafy portion so much reduced as to leave nothing but the ribs, which are incurved at the points, and their inner surface thickly studded with minute ovoid spore cases. In habit all the known species closely resemble each other, but their foliage presents every variation in cutting from the entire pinnae of *A. Phyllitidis* to the finely-cut foliage of *A. millefolium*, a species not in cultivation. The fertile divisions occupy the same position in all the species of this section, excepting in a few instances where the barren portion is stalked instead of being sessile, as is shown in the figures, and they are the least variable of any of the parts of the plant. The majority of *Anemias* grow freely from spores, especially the *Phyllitidis* group; but the others, though they germinate quite as readily, frequently die off in the prothallia state, if the moisture be in excess. To remedy this, it is better to sow the spores upon nodules of rough peat or pieces of Fern-stem, so as to ensure good drainage. Some have creeping rhizomes, and can be increased by division, but propagation by spores is the most expeditious method. A soil composed of equal parts of light loam and sandy peat is the

most suitable for all the robust kinds; but the tenderer subjects require a light spongy soil, almost entirely of peat, or with an addition of good leaf-mould. They require ample drainage and only a moderate supply of water; but a dry state of the soil should be guarded against. The glabrous forms of *A. Phyllitidis* may be grown with advantage in the shade, but full exposure to light is essential to the variegated and all the pilose and tender kinds; and care should be taken to keep the foliage clear of dripping water, as a constant wetting of the foliage not only causes its disfigurement by turning it black, but greatly injures the plant.

The *Anemias*, being chiefly tropical in distribution, require the temperature of a stove or intermediate house, and an airy



Anemia Phyllitidis (fertile frond half natural size).
a fruiting portion; b barren portion.

situation. Very few of these interesting Ferns are as yet in cultivation, and the gems of the genus still remain to be introduced from their headquarters in Tropical America. The following selection contains the best of those already established in our gardens.

A. Phyllitidis.—The best known of the genus, growing to the height of 12 in. to 24 in., inclusive of the fertile panicles, with numerous, spreading, pinnate, barren fronds with a triangular-ovate outline, each consisting of from eight to ten pairs of sessile, ovate-acute, serrated, glossy-green pinnae, which are invariably inserted oppositely; the terminal one is usually similar to the lateral ones, but not unfrequently it is trilobate. The stipes of the fertile fronds are much longer, as a rule, than those of the barren, and are much more rigid and erect. The spore-bearing panicles, which are at first green, ultimately change to an orange-brown. Several varieties of this species are known, which by some are considered species, but they differ so slightly in structure from the species in question

that it seems most fitting to define them as permanent varieties. The principal of these are: *A. tessellata*, which has broad lateral pinnae, and a terminal one, which often exceeds all the rest in dimensions; it however differs from the type mainly in colour, which consists of a groundwork of yellow, overlaid with a network of green veins; *A. angustifolia*, a slender plant covered with fine setaceous hairs, and differs from the other in having bluish-green, narrow, wavy pinnae, with tapering points; *A. fraxinifolia* is likewise a very robust plant with fewer fronds than the type, and distinctly sagittate pinnae in a young state, which become coriaceous and deeply veined when old; and *A. densa*, also a compact-growing plant with numerous narrow-pointed, closely-arranged pinnae, often over-lapping each other at the margins. This group occurs commonly in the West Indies, and southward to Brazil.

A. mandioccana.—Independently of the ornamental panicles, this is a remarkably handsome Fern. In habit and form of its

several inches above the foliage, have numerous erect, close branchlets of a lighter green than the foliage. Though not quite so elegant as the preceding, it is still a very attractive plant. It also is a native of Brazil.

A. Breuteliana.—This has a short creeping rhizome, and grows in tufts composed of several crowns. The barren fronds, which are triangular and pinnate, rise to the height of a foot or more, with several pairs of oblong sessile pinnae, which are frequently lobed or pinnatifid. The barren segments, as well as the entire fronds, spread horizontally, while the fertile panicles, which have slender branchlets, rise some distance above them, a feature which, combined with the soft green, downy foliage, adds greatly to its attractions. A native of the West Indies, Mexico, and Peru.

A. hirsuta.—A very slender species, which in some respects is not unlike the preceding, producing a quantity of grayish, downy foliage from a tuft of small crowns. The barren fronds are triangular, with from six to eight pairs of deeply pinnatifid pinnae. The fertile divisions, which rise about 6 in. above the barren fronds, are surmounted with short compact panicles. This is a common Tropical American Fern.

A. tomentosa.—Of the large group with much divided fronds, this and the variety *cheilanthoides* are the only representatives in cultivation, though the forms are widely distributed, as well as being very variable. The barren segment in the figure represents a form approaching the pinnate type of division, having a pair of sessile, deltoid, nearly bipinnate pinnae at the base, and six pairs of lateral, sessile, opposite, linear-lanceolate, deeply-lobed pinnae, gradually diminishing in size towards the pinnatifid point. The sporiferous panicles are much larger in this than in any of the others enumerated here; they resemble the green inflorescence of the Goose Foot (*Chenopodium*) in density. The variety *cheilanthoides* has a much more divided frond, with smaller roundish lobes, and its foliage, as well as that of the type, is of a bluish green, and tomentose, but this latter character is a variable one, as they sometimes occur nearly glabrous. It is chiefly confined to the West Indies and Brazil, but some of its varieties are found in the Tropics of the Eastern Hemisphere.

A. villosa.—This and the preceding are connected by a series of intermediate links, a circumstance which suggests the probability of their being extreme forms of one species, but they differ widely from each other as will be seen by the description. *A. tomentosa* has a short creeping rhizome, whereas the species in question forms an erect caudex, 4 in. to 6 in. in height, similar to a miniature Tree Fern; its foliage also is produced in much greater quantity, and is more hairy. Its fronds are simply pinnate, with a triangular-lanceolate outline, and from 10 in. to 12 in. in length, of a light bluish-green, and thickly covered with gray stiff hairs, which give the whole plant a hoary appearance. The lower pinnae are sometimes pinnatifid, but generally all the pinnae are only lobed, or crenate, and the branchlets of the panicle are very slender, and placed distantly from each other. The habit of the plant is very good, and deserves, with *A. mandioccana*, a place among the more select Ferns. It is a native of Tropical America.

A. aurita.—This is probably the only representative of the old genus *Coptophyllum* that has been brought into cultivation. Its barren fronds, which are triangular, are from 6 in. to 8 in. in length, including the stipe, with roundish serrated pinnules, which are prominently veined, bright green, and very coriaceous. The fertile fronds have no leafy segments attached, as in all the foregoing, but consist of an irregular branched panicle, with the final divisions similar to those of the true *Anemias*. It is indigenous to Jamaica.

C. M.



Anemia tomentosa (fertile frond half natural size).

pinnae it bears some resemblance to *Asplenium alatum*, but has more prominent veins and a firmer texture. The fronds are lanceolate-acute, inclined to triangular, and about 12 in. to 15 in. in length, raised on pilose stipes, those of the fertile fronds being the longest. The pinnae, which gradually decrease in size towards the point of the rachis, usually overlap each other at the margins, which are entire on the lower half of each pinna, and recurved and crisped on the upper half. The branchlets of the fertile panicle are very slender, and more inclined to spread than in the foregoing. The dark glossy green and permanent freshness of its foliage render it a very desirable Fern. It is a native of Brazil.

A. collina.—Two *Anemias* are cultivated under this name; one a mere variety of *A. Phyllitidis*, and the true one, which partakes of the character of *A. mandioccana*, agreeing with it in dimensions and the outline of its fronds, but differing in the colour and form of its pinnae, which are light green, and inserted further apart upon the rachis, which, like the stipes, is thickly clothed with orange brown hairs. The pinnae are oblong and unequal sided, and number from eight to ten on each side of the rachis. The panicles, which rise

ORCHID CULTURE.

FROM their singular beauty, great diversity of character, and the ease with which they can be cultivated, Orchids, by this time, ought to have found a place in every garden however small. That this is not so is mainly attributable to the circumstance that, as a rule, they are grown in very high temperatures, especially certain sections of them; that this is not really necessary I have myself proved. Our Vandas, *Aerides*, *Saccolabiums*, and what are generally termed hot Orchids, when dependent on fire-heat, are rarely subject to a temperature above 60° during the growing season, and in winter they are for weeks not above 50°, and last winter they were as low as 45° in the morning. That they did not suffer from this treatment those who saw them at the late sale in Edinburgh can bear witness. Thirteen of our plants, none of them rare, realised £144; one Vanda, which Mr. Williams purchased for £30 10s., we had grown during ten years from a small sucker, and it never had lost a single leaf, the stem being clothed to the surface of the basket. This is rarely so with Vandas subject to high temperatures, especially from fire

heat. Allow me now to refer to a much more striking example of the success of moderate heat for Orchids, in the case of the fine collection grown by Dr. Patterson, of the Bridge of Allan. Nearly all the great Orchid growers in Britain have seen the doctor's plants, and those who have seen them recently, as I have, will readily admit that, considering the curious tumbledown sort of houses they inhabit, they are in marvellous health and vigour. His East Indian house is a sort of lounge for gentlemen who are temporarily resident at the Bridge of Allan, for the benefit of its healing waters, or for the good doctor's own skill as a physician. Here they may be seen sitting by the hour, burning their idols, and while there, as a spectator on the first of this month, a lady came in with the doctor; she was surprised at the gorgeousness of a fine plant of *Cattleya labiata*, the true variety in full bloom, and then said, "Why, doctor, I thought these plants could only be grown in hothouses, but this is a greenhouse;" the fact being that the door was standing wide open, and had been so from nine o'clock a.m. till three p.m. during the week I was at the Bridge of Allan. The weather, no doubt, was fine for the season. The fact that gentlemen sit with perfect comfort and smoke their cigars by the hour amongst East Indian Orchids, at all seasons of the year, needs no comment. I counted fifty-three plants in bloom; *Vanda cœrulea*, with sixteen flowers to a spike; I also counted seventy-one plants showing spikes. This, out of 550 plants, Orchid growers will readily admit to be a most satisfactory result of his management. With the aid of a woman, who washes and corks pots and manages the fire, the whole potting and attention to the plants is the result of the doctor's spare hours from six o'clock in the morning till his patients claim his attention after breakfast. He is making an addition to his houses, which will enable him to give some of his gigantic *Vandas*, and other large plants, room to show themselves. No man I know of has done so much in his sphere to spread a taste for Orchid culture as Dr. Patterson; many are now as keen growers as he is, who got their keynote from him. He showed that they could be grown in a climate any one could stay in with comfort, while either tending or examining them, and that they can be grown with less trouble than any other class of plants; that they increase in value as they grow larger and older—a fact not true of most other plants, and that they have an interest which no other class of plants possess.

Tweed Vineyard.

WM. THOMSON.

ORCHID GROWING IN SHALLOW PANS.

WITHIN the last two or three years allusion has from time to time been made to the small pans in use for growing Orchids in Messrs. Veitch's nursery at Chelsea. The advantages that result from the use of these thin, light little pots are now so manifest that a few observations respecting them may be of service to those who have not had an opportunity of seeing them. The pans in question are made of well prepared material such as good garden pots consist of; their smallest size—speaking from memory—is about 2 in. or 2½ in. in diameter, and in shape they are not unlike the little trays used by smokers wherein to deposit cigar ashes, but a trifle deeper, and they are not much thicker than an ordinary tea saucer. The size just named is used for the smallest plants, such as newly-imported *Phalænopsis*; others proportionately larger are employed for plants of greater size, but all are made as light as is compatible with sufficient strength, and, as a matter of course, they are perforated in the bottom in order to allow superabundant water to escape. It thus will be seen that there is little or no depth for crocks or other drainage ordinarily used, nor is any needed, for the potting material employed is of such a character that the water can pass almost as freely through it as through a sieve.

Few greater mistakes can be committed in Orchid cultivation than over-potting, but by the use of these pans, even in the case of the most recently imported non-established plants there need be no fear of over-potting; and owing to their extreme lightness they can be hung up in quantities without their weight straining the roof. The plants can therefore be placed in the best possible position for free healthy growth, which in no way is more accelerated than through the greater disposition that exists for making roots when subjected to the direct influence of light close under the glass. I may here remark that all the different species grown in these pans thrive and attain a strength and vigour such as is not observable in the same species growing under conditions otherwise similar but in ordinary pots or baskets. The roots of Orchids will cling to almost anything with which they come in contact, but there is no material I have ever seen them adhere to that seems so favourable to their retaining lengthened vitality as earthenware such as garden pots are made of. The way the roots interlace and completely line the inner sides of these suspended pans, and long retain life, at once accounts for the plants thriving in them as they do

Another advantage is that, being so shallow, they allow of the whole of the potting material being picked out, when it becomes necessary to remove it, without disturbing the roots to any appreciable extent, the plants thus going on without the inevitable check that follows ordinary re-potting, until their size is such as to require larger pans. As I have already intimated one great thing in favour of the use of these very light pots is, that they admit of being hung up to the roof in quantity, with the roots in a great measure secure within the potting material, in a way not present where baskets or blocks are employed, which, permitting the roots to protrude, they are thus more liable to injury in various ways. It will be obvious that these pans are more suitable for some descriptions of Orchids than others; the thinner, denser-rooted kinds, especially such as *Dendrobiums*. *Phalænopsis*, in particular, do splendidly in them; there is one house at Chelsea almost wholly filled with the latter plants, some 6,000 in number, which is a sight worth going a long distance to see; the rate at which they increase in size—resulting from the favourable position they occupy—the security their roots are under, combined with judicious treatment, are such as require to be seen to be realised. Amongst *Dendrobiums* the difficult-to-manage *D. albosanguineum* is in unusually fine condition; *D. Wardianum* and *D. crassinode*, some of the latter have pseudo-bulbs 2½ ft. long and proportionately thick, although the plants are in pans not more than 4 in. or 5 in. in diameter.

These Orchid pans, I believe, were an idea of Mr. Dominy's, who, as is well known to cultivators of these plants, has accomplished so much in the until recently untrodden field of raising Orchids from seed, and who is equally successful in their cultivation.

T. BAINES.

CYCLAMEN PERSICUM IN AUTUMN.

THE Persian *Cyclamen* is as much an autumn and winter flowering as it is a spring-flowering plant. This is a matter not so much understood as it needs to be, and we may go a step forward and state that generally the *Cyclamen* is not nearly so well grown in private establishments as it deserves to be, and as it ought to be. It was not an uncommon occurrence to meet with *Cyclamen* bulbs put out into the open air to roast in the sun, under the impression that they are being ripened. Then it was thought to be something akin to a floral feat to have the plants in bloom in March and April. Since then we have grown wiser as regards the management of the *Cyclamen*, and with this advantage that not only are the plants much more vigorously grown than they used to be, and the leaves more handsomely marked in consequence, but the flowers are much more numerous produced. With improved cultivation has come also marked advances in the size and substance of the flowers, in the production of brilliant colours, and in the richness and definiteness of their markings.

This year, owing to the lateness of the season, the *Cyclamens* are opening their flowers much sooner than usual. At Mr. H. B. Smith's nursery, at Ealing Dean, there is a very large collection of *Cyclamens* grown, especially of the large flowering type, and many of these are finely in flower. Something like 10,000 plants are annually grown for market and other purposes, and they are arranged in the long, low, span-roofed houses peculiar to nurseries where plants are grown for market purposes; and when the plants are fully in bloom they present an almost unbroken surface of varied colours; an intermingling of charming shades of purple, pink, rose, carmine, &c., with dashes of white produced by the pure white varieties. The large-flowering section has become so popular that a preponderance of these is cultivated, and it is found they are as free bloomers as the smaller flowered types. The great majority of the plants are in what are termed 4½-in. pots; this is a size that seems to afford the plants every chance of fully developing themselves; it is also a convenient one for market purposes. The number of flowers found on one of these plants is something astounding, and it is this fact which makes the *Cyclamen* so valuable for picking from. It appears a rash statement to make, but it is not unusual for plants sixteen months from the seed pots to produce from 200 to 250 blooms each.

The *Cyclamen* flowers are not cut from the plants, but plucked off by taking firm hold of the stem a little below the bloom, and giving it a sharp snatch. It is easily and quickly separated from the corm, without injury to either, and at this time of year the flowers fetch a good price in the market. They will remain for a long time in water.

It is very interesting to note the manner of raising seedling *Cyclamens* on a large scale, and the thoroughly methodical character of the whole proceeding. The seed, which ripens in June and July, is sown as early in August as possible in pans of light, rich, sandy soil. These are plunged in bottom heat, and by the end of November the seedlings are pricked off into 3-in. pots, about fifteen plants in a pot, and kept in a warm, moist temperature. Here they remain till February, when they are repotted singly into small, long thumb

pots, and still kept moving quickly in warmth. They are next potted into 3-in. pots, and about the middle of May they are finally shifted into their flowering pots, and as soon as established put out-of-doors into cold frames, where they are kept growing, being freely watered, sprinkled overhead, and shaded from the hot sun. A grower of some experience recommends cultivators of *Cyclamens* to proceed as follows: Sprinkle the plants early enough in the day for the leaves to dry before night, as if the lights of the frame in which the plants are be closed down while the leaves are wet, the foliage is apt to become drawn. In the case of seedling plants there is no resting space, nor does the plant require any. The earliest and strongest plants, if kept growing on and well looked after, will bloom in October. Mr. Smith in ordinary seasons has many plants in flower by the time autumn might be said to commence.

Mr. Henry Little once showed me some plants in his collection that had bloomed five and six years in succession, and wonderful specimens they were; but they would not have become these had they not been carefully looked after. After the first year of flowering, the bulbs kept over to flower again the following season need some period of repose, but that is a very different thing from neglecting them. They are placed in a cold frame in a sunny aspect and kept moderately dry, but nothing like so dry as our forefathers kept them; and when they begin to show signs of growth they are repotted, put into a frame, kept close at first, and then grown up generously into fine plants. These do not, as a rule, flower so early as seedlings, but they are had in bloom much earlier than is generally supposed.

The best soil for the *Cyclamen* is one made up of light loam, leaf-mould, and a little sand. If it is what is known as a clinging loam, it is well to mix a little peat with it to keep it open. The pots must be well drained; a soddened soil is very hurtful to the *Cyclamen*, and it is very important to be guarded against.

R. D.

GESNERAS AND THEIR CULTURE.

AMONGST plants that are especially adapted for autumn and winter decoration the *Gesnera* still holds a foremost place, combining as it does the properties of both a fine foliaged and flowering plant in a striking degree. Its leaf markings are exceptionally rich and varied, and the flower spikes, when well thrown up above the foliage, form collectively a perfect ideal of a vase or table plant. We have lately been using *Gesneras* somewhat extensively for indoor decoration, as in addition to their suitability for single vases, they give a rich look to groups or large mixed stands of plants, and withstand the ordeal of subdued light and the usually dry atmosphere of ordinary living rooms better than most plants. *G. zebrina* and *zebriga splendens* are beautifully striped, or rather veined, with dark colours, on a rich green ground. *G. cinnabarina* is also a very excellent variety, dwarf and sturdy in habit, and as its name implies bronze or cinnamon in colour.

As regards culture we usually shake the old bulbs or roots out in April, and start them in boxes or pans in light sandy soil, placing them in a Cucumber house or Vinery where a brisk heat is maintained. As soon as they are fairly started into leaf growth, they are potted at once into the pots in which they are intended to flower. We find single plants in 4-in. or 5-in. pots the most useful for vases or for mixing in groups; but if large specimen pots are required from three to six plants may be used with good effect. The compost which we use is turfy loam, peat, and leaf soil, or thoroughly rotten cow or sheep manure, and plenty of sharp silver sand. The pots should be well drained with dry clean potsherds, for although *Gesneras* delight in plenty of root and atmospheric moisture, anything like stagnant water at the root, or a stoppage of the drainage, will prove fatal to them, and if once during the growing season their leaves flag, they seldom recover. They should be shaded from strong sunlight, as they are very easily scorched. We have grown the majority of our plants in the Cucumber house, which was shaded on the south side, but not on the north, and the temperature and general treatment to which the Cucumbers were subjected suit the *Gesneras* admirably, as without a good command of heat and moisture neither will be satisfactory.

Under favourable conditions *Gesneras* are not liable to insect pests, but should mealy bug get established on them it must be carefully removed, as rough usage would be fatal to their leaf beauty. They well repay all the attention that may be given them, and if not required for indoor decoration they prove a source of great attraction in the stove during the duldest and most flowerless months of the year. When their beauty begins to fade, moisture should be gradually withheld; but as long as the foliage remains intact they should be exposed to the light, as on its functions being properly performed to the last depends the size and vigour of the tubers for next year's work. After the foliage is decayed they may

be stored under the stage of the stove, where, if the pots are laid on their side, the soil will keep in a condition to retain the vitality of the roots in the best condition for starting again in spring.

J. Groom.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Double Violets.—It will not be difficult to have plants of these early in bloom this season, as the cool condition of the summer has been specially suited to the production of robust-blooming crowns. Plants needed for winter-flowering should be lifted from the open ground at once and be potted, the best for this purpose being close, compact clumps that will furnish plenty of bloom from a small space. Side shoots put in last autumn that have had the benefit of rich soil should now present good potting clumps. The new white, or as it is in the open air, rosy-white, *Belle de Chate-nay*, has a robust habit, and will make a favourite kind either for open beds or for frames. Though not so pure as the old double white kind, it blooms more freely, and is not so loose in its growth. *De Parme*, another new kind, comes so near to the old *Marie Louise* that it is either that kind or a near relation to it. Still, it is a fine kind, and a great advance upon the Neapolitan; the flowers are larger and rather deeper-coloured, and more freely produced. The old double blue has, perhaps, the fullest and neatest flowers of all the kinds, but the stems are short. It is, however, very beautiful when grown in frames or in beds in the open ground, where the thick growth keeps the flowers well up from the soil. *Blandyana* is of a better habit and a somewhat freer bloomer; the flowers are rather larger, but not quite so dark or so neatly formed. The Neapolitan will doubtless ever be a favourite, in spite of other and newer kinds, but it is not quite so hardy, and needs a frame to protect it in severe weather. A number of plants of each of these kinds in pots will supply Violets for gathering all through the winter. A gentle heat furnished by a mixture of leaves and manure will start some early, and the rest will bloom much earlier under glass without heat than naturally in the open ground. For button-holes or for the perfuming of a room Violets are ever welcome.—A. D.

Lilium auratum.—A bulb of this Lily, which I got last year, and which had come, I believe, from Japan, flowered in this fashion: There were sixteen flowers, of large size, in two absolutely symmetrical rows, one close above the other, and forming a perfect crown. The lower row came out all at once, about a couple of days before the upper row, which, after expanding, projected slightly beyond the lower. After both tiers were fully out, the crown stood complete for about ten days. The lower row then fell. The colour was good, and altogether it was a wonderfully beautiful object. I never happened to see this Lily flower in this way before, and it may be a mere sport. The stem is perfectly round, but there is a tendency to coalescence in a few of the leaves. I shall look out with interest for the behaviour of this bulb next year.—C. WYVILLE THOMSON, *Bonsyle, Lintithyow.*

Pteris serrulata cristata.—This large-crested variety of one of the oldest and commonest of hothouse Ferns is admirable as a decorative plant when grown into bold specimens, the outline of the plants being broken and varied and the tasseled shoots elegant. There are great numbers of this Fern grown at Chiswick for South Kensington. It would be also good for room decoration.

Bulbophyllum Beccari.—As regards foliage this is the most remarkable Orchid that has been introduced for many years, the leaves being more like Zulu shields than the foliage to which we are accustomed in an Orchid. They are frequently 18 in. long and 1 ft. wide, stiff and firm in substance. Mr. Bull has quite a quantity of this Orchid, and it will be interesting to see what kind of flower it produces.

Chamædorea glaucifolia.—This is a poem of grace, if such a thing can be said of any plant. I have noted of late years many graceful Palms, some of which are happily becoming more common in our houses, and will one day tend to make them more graceful and verdant; but I think, for bewitching elegance of form, this is second to no other. There are good specimens of it in the Aroid house at Kew.—V.

Cocos Weddelliana.—This most exquisitely graceful Palm is likely to be an ornament of every hothouse some day, as it has recently been raised in large quantities. Houses of it in Mr. Bull's nursery look like fresh meadows, owing to the grace and the verdure of the elegant foliage.

Sarracenia flava ornata.—This is a distinct and handsome Pitcher Plant, remarkable for its bold and strongly pronounced venation. The upper part of the pitcher is of a dark purplish-red, which is continued over the lid. It is a very handsome form, the contrast between its clear green and the bold red venation being striking and very effective.

Selaginella Kraussiana aurea.—This is a golden tinted variety of the common *Selaginella* of our hothouse, having the same free-growing habit as the type, and differs from it only in the colour of its leaves, which, instead of being green, are yellowish. The plant will be valuable for similar purposes to those for which the very popular old plant is used.

Culture of Bouvardias (p. 415).—"J. S. W.'s" mode of growing these is simply the old slow system that I and others who have long known and grown them tried, and found so far wanting as to give it up for a better. "J. S. W." incidentally divulges what his estimation of well-grown Bouvardias is when he instances the plants sold at Covent Garden Market, which are about half the size and strength that plants grown in the way I advise will attain in the time, and are not capable of producing more than half the blooms that they should do during the autumn and winter, which is the season I had in view when writing on this subject. By the method which I recommend for growing and blooming Bouvardias, double the quantity of flowers can be produced in the same time, and of better quality, than by the old or cool system.—T. BAINES.

Ficus Parcelli.—This is a very distinct variegated plant, and one that is useful for decorative purposes. I find that it requires confining to a small root space in order to get the variegation clear and well developed. When the white portion predominates, and the green is clear and well defined, it forms a very effective subject either for a vase singly, or for mixing in groups.—J. GROOM.

Christmas Roses in Pots.—No one, I suppose, ever has too many Christmas Roses, any more than they do of the still more beautiful Roses that are the delight of all in summer and autumn; but those who have not grown the former in pots do not know how very manageable they are under cold pit or greenhouse treatment. Their thick, leathery leaves and strong, fleshy roots, of course, furnish evidence that they can bear hardships, but they do not like a very warm house, but in a cool greenhouse strong plants continue to produce flowers for a long time. They may be potted up from the beds now, but the best time to do this is early in the season, plunging the pots afterwards in the open air, and keeping them well supplied with water. Rather strong loam, with about a fourth part of manure well incorporated with it, suits them best, using pots rather large in proportion to the size of the roots, as it is not necessary in all cases to repot every year. I have a number of plants of *H. niger* that have occupied the same pots three years, still increasing in size and in number of flowers borne; but any plants that seem pot-bound should be repotted in spring, or, if they already occupy large pots, divide the roots into two or more plants, and pot separately. If a large stock is required, one old plant may be cut into a dozen, or perhaps more, and be planted out in a nursery bed for a couple of years. Each piece may be cut off with a bud or crown and a root or two that will soon establish itself. The spring is the best time for division.—E. H.

Potting and Planting Bulbs.—In the remarks on this subject by "S. D." (p. 389) it is stated that double Tulips such as *Tournesol*, *Rex Rubrorum*, *Duc Van Thol*, and *Marriage de ma Fille* "are more showy than single kinds," a statement to which I am sure many will take exception. *Tournesol* is undoubtedly the prince of double Tulips; *Rex Rubrorum* is disfigured by the green petals mingling with the coloured ones; *Duc Van Thol* is quite unworthy of cultivation in pots; and *Marriage de ma Fille* is too tall in growth and far too late in flowering to be of much value for pot culture. The single varieties of the early Tulip are much to be preferred for pot culture to the double ones; they have larger and richer coloured flowers, they are generally dwarf in growth, and fine in form. In all competitions with early Tulips it will be invariably found that the single varieties are grown for the purpose, while in beds they have a far greater decorative effect. The following is a list of a few varieties which I can heartily recommend to those who may be thinking of growing a few in pots: *Scarlet and crimson selfs*—*Scarlet Van Thol*, *Purple Crown*, and *Vermilion Brilliant*; *white self*—*White Pottebakker*; *yellow selfs*—*Canary Bird* and *Yellow Prince*; *violet and purple selfs*—*Molière*, *Proserpine*, *Queen of Violets*, *Van der Neer*, and *Wouverman*; *striped*—*Comte de Vergeunes*, *Fabiola*, *Joost Van Vondel* (rich rosy-crimson with broad flakes of white, sometimes self rosy-crimson), *Roi Pepin*, *Queen Victoria* (white, flamed with rose), and *Royal Standard* (scarlet and white); *tipped flowers*—*Kaizer Kroon* (one of the very finest of early Tulips, shaded scarlet, heavily tipped with gold), *Duchesse de Parma* (crimson and gold), and *Couleur Cardinal* (crimson, feathered with vermilion). I have known early single Tulips kept for a long time in flower by simply tying round the blooms when they have attained their full size a piece of silk thread as near as possible answering to the colour of each, and the pots kept in a cool, shaded house. In potting, three bulbs of one variety should be put into a 4½-in. pot, and treated in the same manner as Hyacinths.—R. D.

THE GARDEN FLORA.

PLATE CCVI.—*HÆMANTHUS KALBREYERI*.

Drawn by MISS DUFFIELD.

THE subject of our plate this week is one of the "Blood Lilies," and rich though they are in kinds possessing brilliancy and beauty, this is one of the finest of them. To Messrs. Veitch belongs the credit of its introduction, but to Mr. Bull we are indebted for the specimen from which our plate was prepared. It was discovered by Mr. Kalbreyer when collecting for his firm in Guinea, and is localised as from the Isles de Los, where it was found growing in open spaces under trees. It comes between the new *H. Manni* (*Bot. Mag.*, t. 6364), and the old *H. multiflorus* grown in gardens for the last 250 years. It is a species with a rootstock rather than a bulb, from which proceed fleshy cylindrical fibres. The leaf-stem is developed after the flowers. It is about 6 in. long with copious claret blotches on the green ground, and bears two or three oblong leaves from 9 in. to 10 in. long, and about 3 in. broad, bright green on both sides. The flower-stem is lateral, reaching, according to Mr. Kalbreyer, a length of from 2 ft. to 3 ft. The floral cluster is from thirty to forty-flowered, and measures from 5 in. to 6 in. across. The bracts or leaves which enclose the flowers are small and turn down, not, as in some kinds, the chief attraction of the plant, as, for example, in the case of the Cape Tulip (*H. coccineus*). The segments of the flower are narrow, and spread 2 in. across. The yellow anthers are supported on red filaments 1 in. long. Description fails to convey an adequate conception of the beauty of this *Hæmanthus*, but the accompanying plate will give a good idea of its worth. We can only hope that other fine species may be led by it into fashion. The genus *Hæmanthus* may be divided into two groups, the first being characterised by large, thin, undulating leaves, sheathing together and forming a false stem, as seen in the *Banana* and *Crinum*, from which the flower-stem is either lateral, or comes up in the centre. The bulb of this group, too, is distinct in formation; it has always a large development of the stem portion, and the scales or coats are often so far absent as to leave a mere root-stock. To this belongs *H. multiflorus*, and the present species in the division with a spreading flower, and *H. puniceus* and *H. natalensis* in the division with the floral segments erect. There are other species, but these suffice for instances. *H. Manni* and *H. Katherine* are new kinds in cultivation, and allies of the plant now under notice. In the other group the bulbs are compressed, the leaves are opposite, succulent, do not sheath, and are not undulating. It is divided in the same way as the last. Amongst kinds with spreading flowers are *H. carneus*, sometimes called *roseus*, and *H. lancifolius*. Amongst those with erect flowers are several species, of which *H. hirsutus*, *H. albo-maculatus*, *H. Arnotti*, and *H. deformis* are new, or comparatively so; there is, moreover, that grand old plant, *H. coccineus*. *H. moschatus* is remarkable for its scented flowers in an otherwise scentless genus. *H. albo-maculatus* is known from all others by its spotted leaves, which are to it a special ornament.

There are about thirty-five species of *Hæmanthus*, of which, perhaps, twenty are in cultivation. One hybrid we know of, viz., *H. albiflos* + *H. carinatus*, raised by Colonel Clarke. *H. Rouperi* we should like to see more of, as it is evidently a fine kind. It is allied to *H. insignis* and *H. puniceus*, from both of which it seems to differ. It is cultivated by Messrs. Henderson & Son, and appears to be distinct, though it has not been, I believe, described or examined by botanical authority. A very interesting plant, *Buphane toxicaria*, has been referred to the Blood Lilies, but wrongly so. It is the Poison Bulb of South Africa, the viscid juice of which is used by the natives for poisoning their arrows.

The culture of the *Hæmanthus*es is by no means difficult; whether they are in a suitable house or not, however, makes a considerable difference. The kind of structure most suitable for bulbs of this character is that of a lean-to or half-span, with the back-wall facing the south, and so managed within as not to be permanently moist. There may be two borders of spar or gravel, one in front for the smaller plants, another at the back for larger specimens, and between the borders should run a pathway. A portion of each border might be prepared with soil and stones in which to plant out, a method calculated to produce the finest results, but with the drawback that flowering specimens could not be conveniently moved. No doubt a span-roofed house, with a path all round, would answer well, especially for a general bulb collection, where some would need a certain amount of shade. We have in view houses of both classes, and another very excellent system of culture—that once pursued at Hillfield, under the late Mr. Wilson Saunders, where Mr. Green was gardener. There in front of some of the houses were low glass frames covering a prepared border, in which all sorts of choice subjects were planted. Sufficient heat came from the structure against which the frames leaned, and

the ventilators could be made to open into these miniature glass ranges. In summer when the natural heat is sufficient, the lights were removed, and the plants had the full benefit of exposure to sun and air. Some species would do well in such frames, but for the more northern species, as in the present instance, we should prefer a house, having found them do well even in nearly a stove temperature. The soil to be preferred is a rich friable loam, without, if possible, any admixture. In our opinion natural soils when of suitable character are always better than mixtures, not only for these but many other subjects. Manure as a rule is not desirable. It is better to assist with liquid manure at the right season, it being without the objection that belongs to manure and leaf-mould, viz., losing bulk and otherwise affecting the soil at a time when it is too soon for repotting. These fleshy-rooted plants are better if allowed to remain in an established condition for a considerable period. Pot them in moderately small pots, and observe how well some kinds thrive, sometimes even bursting the pots. *Hemantus Kalbreyeri*, like its near allies, flowers in summer; therefore, as this season approaches, carefully administer water, and, as the heads show, gradually increase the supply. With full exposure to light, water may be given freely during growth, afterwards withholding it as the plants go to rest; then after proper ripening an only occasional watering will suffice during the winter. At this season a temperature of 40° to 45° F. will be found to answer. Observe that the plants are not unnaturally dried by too high a temperature of the pipes, or in too close proximity to them. L.

GARDENING FOR THE WEEK.

Flower Garden.

PRESUMING that the flower beds have been filled, either with material for winter effect, or with spring-flowering plants and bulbs, there will now be little else to do in the flower garden proper, except the maintenance of neatness, which is a matter more than ever desirable at this dulllest of all seasons of the year. In other portions of ornamental grounds, which are generally designated flower gardens, there may still be found abundant work, such as thinning out clumps of shrubs, or planting additional ones or single specimens, of either deciduous trees or evergreens. Any tree or shrub may at this season be moved with safety. Of late years there has been such a demand for Coniferous plants, and particularly within the last two or three years, for the Japanese kinds, that deciduous trees have become neglected; and, granted that this class of plants is interesting and beautiful, still, at the present rate of planting them, combined with a proportionate neglect of deciduous trees, ornamental grounds a few years hence will present more the appearance of cemeteries than that of pleasure grounds. To prevent this in all new planting there should be a judicious admixture of the finer deciduous trees, such as *Acacias*, *Maples*, *Thorns*, *Turkey Oaks*, *Tulip trees*, *Liquidambars*, *Purple Beches*, *Lombardy Poplars*, *Spanish and Horse Chestnuts*, &c. In forming clumps of shrubs also, evergreens are often too prominent, whilst flowering deciduous shrubs, such as *Lilacs*, *Deutzias*, *Snowberries*, *Spiræas*, and *Weigelas*, which are, in every way, suited for association with the dwarfier-growing evergreens, are neglected. Half-hardy plants that are to winter in the open air should now receive partial protection by surrounding the base of the plants with ashes, Cocoa-fibre, or bracken, and some of the choicer Ferns and rock plants will require the same attention. *Dahlias*, *Gladioli*, *Tigridias*, and *Marvel of Peru* should all now be dug up and dried previous to finally storing them away. The ground is so full of moisture that it will scarcely be safe to leave *Cannas* out for the winter. At this place last season all were killed, though well protected with bracken, so that my impression is that a sodden state of the ground is more fatal to them than severe frost. If lifted the roots will winter safely in any place from which frost can be excluded. This is the most critical time for the well-being of bedding plants; damp is their great foe, and therefore water but sparingly, and keep the hardier kinds well exposed to induce sturdiness. Tender kinds, such as *Coleuses* and *Alternantheras* will not winter successfully in a lower temperature than 65°, and they must be kept well up to the light.—W. W.

Auriculas.—Remove from beds of Alpine *Auriculas* out-of-doors all decaying leaves, and destroy weeds before they grow to a large size. The surface of the beds should be loosened either with a small hoe or a pointed stick. Slugs are very fond of the leaves, and perhaps the best way in which to destroy them is to pick them off at night. If previous instructions have been observed as to planting and making the beds these will be a little higher than the surrounding surface; a damp, close soil, as low as the neighbouring

surface, does not at all suit these Alpine sorts. For out-of-doors culture seedlings are better adapted than choice named sorts. A packet of seeds costing about half-a-crown would produce as many plants as would plant a large bed. It is not the time to give precise instructions as to sowing the seeds, as March is a good month for that operation; they are, however, easily raised, and the plants can be grown on to a flowering size with but little expense or trouble. I have seen plants of Alpine and show *Auriculas* thriving remarkably well on a sheltered bank in the garden at Stakehill, near Manchester, a miserably smoky locality. They were planted amongst lumps of stone or clinkers, and in such a position that it was not possible that water could lodge about the collars of the plants. However much these fine plants may be valued for frame culture, it is even more desirable that they should be introduced into the flower garden wherever practicable as hardy occupants of that department.

Carnations and Picotees.—The ground is at present in very favourable condition for planting out in beds, and if a sufficient number of plants can be obtained, planting ought now to be proceeded with. Near London we do not think of planting choice varieties of *Carnations* and *Picotees* out-of-doors to stand over the winter, and yet so far north as Newcastle-upon-Tyne this is done successfully; growers there will now be making arrangements to plant. The flowers exhibited annually at Newcastle from plants grown in the open air are wonderful examples of skilful management. If the plants are put out in the spring such good flowers are not obtained. When the plants are put out a small stick is placed to each, in order to prevent the wind from snapping them over, and the surface of the beds has to be covered with some dry, rotten, stable manure. This mulching prevents the plants from being thrown out of the ground by frost, and also further helps to steady them. Damp is one of the worst enemies with which the *Carnation* has to contend; even intense frost is not injurious.

Hollyhocks.—If the choice varieties have not yet been taken up, this ought to be done at once, and no time should be lost in potting them. The roots should be cut back considerably, and all old leaves removed, in order to allow the young growths at the base of the stems to develop themselves. Do not over-pot, nor squeeze the roots into a pot not quite large enough to contain them, although that is better than over-potting. See that the young plants are kept free from red spider and other pests. If the plants have been put out in a cold frame, the leaves will continue to decay in damp foggy weather; let them be removed at once to prevent further injury. Some take off the cuttings from the base of the stem now, but I would only recommend this to be done if there be so many that they would injure each other during the winter. January, February, and March are the best months in which to propagate for late flowering plants. See that the frames are freely aired, removing the lights as often as possible with safety.

Pansies and Pinks in Beds.—The fine autumn weather which we have had has been exceedingly favourable to the growth of young plants of both of these put out in beds; see, therefore, that they are kept in good condition. Any plants that seem as if they would not form free-flowering healthy specimens should be removed, and others taken from the reserve stock to fill up their places. It is necessary that this should be done in the case of scarce sorts that are weakly. They should be taken out and be repotted in small pots or they may be lost altogether. Pinks may be treated in the same way. A pair of plants should be wintered in a 3-in. pot, and treated in the same manner as *Carnations* and *Picotees*. If there are any vacancies in the beds of Pinks they must also be filled up from the reserve stock in pots kept for this purpose.

Forcing Pinks.—These are now, or ought to be, well-established in their pots. Go carefully over the plants and remove all dead and decaying leaves. Stir the surface of the soil, and press down the plants gently by placing the fingers near the stems. Give plenty of air at night as well as by day, unless there is danger of frost.

Polyanthuses.—These we winter in a frame with Alpine *Auriculas*, as they require very similar treatment in regard to ventilation and watering. We would not like to see show *Auriculas* get a drop of rain, but a gentle shower would not hurt the others, which require rather more water at the roots than *Auriculas*. It does not do to let them get quite dry, but that would not in the least injure *Auriculas*. Even now red spider holds its own on some plants that were sent here late in the autumn, and this after recent drenchings with soapy water.—J. DOUGLAS.

Stove.

Winter Blooming Stove Plants.—It is a good plan at this time to look over the stock of these which are to afford the principal supply of flowers for the next three months, with a view to keep up a succession so as not to have more in bloom at any time

during the period than requisite, with a corresponding deficiency at others. Such portion of the stove plants usually propagated each year for winter flowering as it is deemed necessary to treat so as to come later into bloom than those that receive heat enough to bring them on at once, need to be cautiously managed betwixt this and the end of the year, when the temperature, especially in the nights, falls low; whilst what may be termed a slightly retarding process is being carried out with them, otherwise they are apt to get chilled, the effect of which would be to very much interfere with their blooming capabilities at the time they are required. This applies to the winter flowering Begonias, Plumbago rosea, Euphorbia jacquiniiflora, Poinsettias, Eranthemums, Meyenias, Thyrsacanthuses, Pentas carnea, Gesneras, and others of similar character. Such portions of any of these as are now in flower should, so far as possible, be kept where there is no more heat than requisite to preserve them in a healthy condition, as ever so little more warmth than needful tends to shorten the duration of the bloom. Those that are coming on ought to be treated similarly, so far as the time when they are wanted in flower will admit of. In all cases I should advise no more water being used at the roots than absolutely requisite with any plants now in a somewhat lower temperature than they enjoy. This is particularly necessary for those that are not very free rooters; the atmosphere also, wherever stove or intermediate house plants are located, should be kept correspondingly drier, as when there is more humidity in the air of the house than needful to support the much reduced evaporation from the leaves, it directly tends to cause the flowers to be softer and less enduring.

Alamandas.—Where plants of these exist grown on the roof, either planted out or in pots, the time of putting them to rest will be dependant upon the purpose they are required for; if not needed in bloom until late in the spring they may still be kept on blooming, and at no season will their flowers be more useful than for some time yet, as when not exposed to an unusually cool dry atmosphere, I have found them last longer in a cut state through the winter than during the spring and summer; and where the house in which they are grown affords heat enough to keep them flowering up to the end of the year, and even beyond this, all that is necessary is to give as much water to the roots as required; but where they are wanted to bloom early, and consequently to be cut back about the beginning of the year, it will be better to now subject them to a drying process at the roots that will stop all further growth.

Æschynanthuses.—Where these are grown hung up in baskets and pots in the way they are seen to the best advantage, the soil should be kept as dry as can be done without causing their leaves to shrivel, which will permit of the shoots being now shortened back so far as deemed needful previous to their again commencing growth. The advantage gained by so treating these plants and others of like character that are hung up from the roof is that by the reduction in their heads they intercept less light from the main occupants of the house.

Hoyas.—The drooping kinds, such as *H. bella* and *H. Paxtoni*, so useful for suspending like the *Æschynanthus*, if their shoots are not well shortened back each year, get into a long, straggling condition, and cutting them in now, as advised with the last-named plants, will answer equally well to deferring it until spring, providing corresponding care is taken to give them no more water than requisite; and when their heads are thus reduced there is a better chance of cleaning them from scale, bugs, or any similar insects with which they may be affected.

Dichorisandras.—The handsome and distinct *D. musaica* and other useful kinds, such as *D. vittata*, will now, where grown moderately warm, have done flowering, and should be stood where they will for a time be at rest, but not kept so cool as to injure their roots. To check any disposition to grow for some time it will be advisable to give no more water than just enough to keep the soil slightly moist. These, like other stove plants whose natural season of flowering is in the autumn, are the most serviceable when treated so as to induce their blooming late when flowers are scarce, and I have found that unless they receive a tolerably lengthened rest through the winter there is a disposition to bloom too early.

Gardenias.—Plants of these required for flowering now, for some time forward should have the best position that the warmest end of the stove can afford. They are, more than many things, liable to drop their bloom-buds in the winter season, often when so far advanced as to be almost on the verge of expanding; extremes from any cause, either of being too dry or too wet at the roots, too much moisture in the atmosphere, too much heat suddenly applied, or the opposite of being too cold, especially after the flowers have attained considerable size, will cause their falling off, although the mischief will not always be apparent for some weeks after, whatever may bring it about has occurred. The most effectual means I have ever found for avoiding the flowers dropping is to keep the plants in as

light a position as possible. The little *G. citriodora*, blooming as it does in such a small state, if grown in quantity will always be found useful, especially where many flowers are wanted for bouquets.

Amayrillises that bloomed late, and made correspondingly late growth, will, like the earlier portion, now need keeping at rest. This refers both to the deciduous and evergreen kinds; the former are safe anywhere with the heat of an ordinary greenhouse, and will bear the soil keeping quite dry. The evergreen sorts need to be somewhat differently managed, and although plants that are very easy to grow, they are often by those who have not had much experience with them not so well done as those that are deciduous, for, unless in the case of such as are naturally the freest flowerers, if they are not kept sufficiently dry during the winter they appear never to get fairly to rest; but, on the other hand, they must not be let to become so dry as to cause their leaves to shrivel, as where this happens some premature loss of foliage is sure to occur, which at once reduces the strength of the bulbs; and it frequently happens that this pinching process is carried out with plants that have not attained enough strength to bloom; in this case they are only weakened for no purpose. With young stock of the evergreen species I should not advise the roots being further dried than will result from keeping the soil in a slightly moist condition.

Tuberoses.—There are few things that afford such a long succession of flowers as Tuberoses, for where enough are grown they may be had in bloom for much the greater portion of the year. Their delicious fragrance and lasting abilities when cut render them, where white flowers are needed, quite equal to *Stephanotis*, and if the management is fairly understood, a long continuance of bloom may be kept up much easier than with *Stephanotis*. I should advise those who want to have them in good time, to at once provide a sufficient quantity of roots, potting a portion up without delay, and keeping the remainder dry for the present, potting them at intervals. The American-grown roots are held in much the most favour at the present day. Those who have had little experience with these plants often fail in getting the bulbs to start, generally through their decaying instead of forming roots, and to which they are very liable unless great caution is used in the matter of water; for if the soil is kept in anything approaching the moist condition that most other plants would need the mischief is almost certain to occur. I have succeeded best by potting them in soil in a comparatively dry state, and then standing the pots on the earthen floor of a pit, or some moisture-holding material slightly damp, from which the pots will usually absorb enough until the roots are well in motion, when they will bear the soil to be kept fairly moist.

Deciduous Stove Plants.—All the remaining stock of these that are usually dried off through the winter, including *Gloriosas*, summer-flowering *Gesneras*, *Gloxinias*, *Achimenes*, *Caladiums*, &c., will now require to be put to rest, but avoid the common error of keeping them too cold, or placing them, as is often done, under stages near pipes that are sometimes too hot and at other times the opposite. In such places the soil frequently gets wet with the water that runs from plants on the stages above, and, if severe weather comes, necessitating the use of considerable fire-heat, the roots get too much dried up. Whilst at rest, the temperature of an intermediate house will suit them best, but where room in this way cannot be afforded, so as to allow their remaining in the pots in which they have been grown, let them be taken out and put in dry sand in boxes or paper bags.—T. BAINES.

Hardy Fruit.

The weather has been a source of annoyance for some months past, but at length a desirable change has come, for there could not possibly be a more favourable season than the present one is proving for garden operations of every kind, and more especially for fruit tree planting, which is always best done as early in the autumn as circumstances permit. The necessity for early planting and renovation of fruit tree borders has been so often insisted on in these pages, that nothing further need be added except that such work should, if possible, be brought to a close by the end of this month. Any that then remain to be done had better be deferred till vegetation again becomes active. Though these notes are only intended as hints and reminders of work to be done, as obviously—even if desirable—cultural details would take up too much space, yet a few words to beginners and the inexperienced in planting may perhaps be of service. From the foregoing it will be seen that we attach some importance to the season, or what may be termed the right time for planting; but after all, comparatively speaking, this is but a secondary consideration, as successful planting may be done any time from October to April; but we attach the greatest importance to the mode of planting; by which is meant not only the literal planting of the trees, but the proper preparation of the ground for them, and in doing this the first essential is good drainage. Every kind of cultivated hardy fruit, from a Peach to a Gooseberry, resents anything

like a stagnant state of the soil ; moreover, good drainage increases by several degrees its temperature, and, as a matter of course, this must aid the more perfect development of the fruit, particularly in such a season as the one we have just passed through. The kind of soil that suits fruit trees generally is a calcareous loam of moderate texture—that is, neither heavy nor light—but of necessity this matter must be subject to local considerations, as often the soil best suited for certain trees is not obtainable ; but, though there is a best kind, they are by no means fastidious, and all soils worthy of the name can by a little outlay of time and money be made to grow fruit well. Light ground should be trenched very deeply, and, if procurable, heavy loam or clay should be intermixed with it, but if this be not obtainable, well firming will in some measure atone for its absence. The opposite conditions, that is, very heavy or clayey soils, should also be trenched, and any sort of material that would render it more porous, such as mortar rubble, charcoal, and cinder ashes should be added, and it must be allowed to subside naturally, without artificial compression. Unless the soil be very poor indeed, no manure of any kind should be mixed directly with it, for the simple reason that the disposition of all fruit trees, when planted in rich soils, inclines towards the production of wood rather than fruit. It must not be inferred from this that manure is not essential to the production of good fruit, for it most certainly is, but never till the trees have fairly begun fruiting, and then annual surface dressings have the most marked effect, for, thus applied, it is not only valuable from a fertilising point of view, but it tends to keep the roots near the surface, a position in which they are most benefited by the action of sun and air. Yet how often do we disregard this question of surface-rooting, and, as it were, drive the roots downwards by digging and cropping the ground which they occupy with vegetables, &c. The whole question resolves itself into one of space ; all who have plenty of ground for kitchen garden crops should never think of encroaching on the fruit tree borders, and those who by the force of circumstances must thus crop, should at least allow each tree a fair modicum of space. Keep the roots near the surface ; deep planting is an error which some make through the erroneous impression that unless so buried they will be injured by frost. Above all, let them be well spread out, and the soil worked well amongst them with the hand, and afterwards let the trees be securely staked, for till that is done all fresh roots that may be made will, by the first gale, be destroyed through the swaying to and fro of the tree.—W. W.

Extracts from my Diary.—November 17 to 22.

FLOWERS.—Sponging Crotons, Dracænas, and Poinsettias. Staking Adiantum Farleyense. Getting up Dahlias, and placing them in boxes for the winter. Gathering seeds of Brier to produce stocks for Roses. Boxing Echeverias. Potting Centaurea ragusina, Stag's-horn Pelargonium, and Lily of the Valley for forcing. Getting a few more Primulas and Cinerarias into heat for blooming. Taking up from outside border East Lothian Stocks, potting, and placing them in cold houses. Placing a few more Spireas in heat. Sowing Cyclamen persicum in boxes and pans. Staking Mignonette. Tying Azaleas and Eupatoriums.

FRUIT.—Looking over Trebbiano Vines and cutting out laterals and decaying leaves. Tying Vine shoots in early house. Keeping early Peach house close preparatory to starting. Looking over Apples and Pears in fruit room. Cutting Melons, wrapping them in cotton wool, and placing them on pipes in Melon house to ripen. Looking over Pines, and watering all requiring it. Digging holes for planting fruit trees. Taking the surface soil off early Peach house border about 2 in. in depth.

VEGETABLES.—Putting Seakale into pots, and placing it in a frame for forcing. Tying and thinning Tomatoes and winter Cucumbers. Potting Osborn's French Bean. Cutting all Self-protecting Broccoli ready for use. Spawning Mushroom bed outside, and turning manure for other beds, mixing it with a little earth. Digging ground for spring cropping. Looking over Tomatoes in Vinery, and picking out those decaying. Covering up Seakale bed outside with manure and leaves for forcing.—R. G., *Burghley*.

Hardy Florists' Flowers.—Under this title Mr. James Douglas has a work in hand which will be published shortly. It will contain an introduction by the Rev. F. D. Horner ; chapters on the propagation, cultivation, and raising of new varieties of Auriculas, Carnations and Picotees, Tulips, Polyanthus, Chrysanthemums, Dahlias, Gladioli, Hollyhocks, Ranunculuses, Pinks, Pansies, Phloxes, Antirrhinums, and Aquilegias, with select lists of each class. It is also to contain a monthly calendar of operations ; and numerous illustrations, amongst which is to be a portrait of Mr. Charles Turner, from a photograph by Elliott & Fry.

THE PHYLLOXERA IN FRANCE.

ONE must have been at Bordeaux and heard that word "Phylloxera" uttered by a Bordelais to realise all the irritation associated with it. When a Bordelais speaks of the Phylloxera an idea can be formed of the way in which of old Montagues and Capulets spoke of each other, with such hatred, such terror, such thirst for vengeance does he pronounce the word. Looking at the suffering Vines and comparing the splendour that was, with the present misery and fears for the future, quite explains the rage of the Bordelais at the exasperating insect. As yet the renowned country of Médoc and Sauterne, where wines are produced which appear only on the most sumptuous tables, has not been attacked in a very sensible degree ; but on the right bank of the Gironde, from Florac to Loussiac, from Loussiac to St. Croix du Mont, across the vast territory bordering the bend of the Gironde, desolation is at its height ; and in the districts further distant, in Charente, Languedoc, and the south, the evil is almost irreparable. Four hundred thousand hectares of Vines have almost disappeared, and 200,000 more are threatened with a like fate. A third part of the Vineyards of France have been attacked, and the remaining two-thirds can only reckon on an uncertain future. An annual revenue of 150,000,000*f.* is lost to the nation, and a capital of three or four milliards has become unproductive.

Since I have been here I have heard many people of experience speaking of the Phylloxera and of the means available for combating it ; I have myself carefully, and with the aid of competent guides, examined both the Vines and their enemy, and the conclusion to be drawn is that the problem of its extirpation still awaits a practical solution—one capable of producing results such as sulphur produced on the scourge of 1854—the oidium. As regards the Phylloxera, only palliatives, preventive measures, have been tried, leaving it in doubt whether to attribute the disappearance or absence of the insect to them or to chance, the Vine perhaps being again suddenly ravaged and the futility of the treatment demonstrated. As soon as the Government found itself under the necessity of exempting the ravaged and unproductive Vines from taxation it gave the matter its attention. A prize of 300,000*f.* was offered to the inventor of a means of arresting or preventing the ravages of Phylloxera, and 500,000*f.* was voted in aid of the suffering Vine-growers. The prize of 300,000*f.* has given rise to projects enough ; and as to the vote, it has served to convert a certain number of men into inspectors and reporters, who have still further increased the already rather rich collection of designations composing the French official world. The Vine-growers have still to choose between three courses—either to submerge the Vines, to subject them to injections of sulphuret of carbon, or to plant Vines of American origin. Submersion is only possible on the low-lying banks of rivers or canals. It has given very good results where the water serving for the submersion is slimy enough, like that of the Gironde, for instance, to compensate by a deposit of mud for the impoverishment of the soil the submersion in general produces. This is apparently the only result of the submersion, and it does not extirpate the insect, which in its winged state can escape. The mud deposited by certain waters richly charged with fertilising matters produces such a strengthening effect as to paralyze the enfeebling influence of the Phylloxera ; but it must not be forgotten that the only Vines that can be submerged are those below the level of rivers or canals—that is to say the least important part of the Vines attacked or destroyed. The prolonged rains of this year led some Vine-growers to hope that, with the soil soaked, the terrible enemy would be overcome ; but when the rains ceased and the sun had dried and warmed the Vines again there was the Phylloxera as before, and neither rain nor damp had harmed him. Submersion cannot deliver the Gironde from the ravaging insect ; but it is well to submerge wherever it is possible with the slimy water of the Gironde, which if it does not destroy the Phylloxera, acts as a restorative to the ravaged Vines.

All who have had the opportunity of judging of its effect seem to be of opinion that sulphuret of carbon is an almost certain preservative for Vines which have not yet been attacked, or only slightly so. Sulphuret of carbon is a liquid which is applied by injection. Two men are required for the operation, one to drive the injection into the soil and another immediately to close the aperture so as to prevent any external evaporation. The operation requires to be performed by skilled workmen, and must be executed with great care, so that neither too much or too little of the substance be injected, and that it be at the proper distance from the surface and from the roots. Great precision is thus requisite and the opening must be immediately closed. The cost of materials and labour is calculated at 150*f.* to 160*f.* per hectare, and the operation being always necessary twice a year, this involves an outlay of 300*f.* or 320*f.* per hectare. In most of the Vineyards in Languedoc and the departments producing ordinary wines, such a remedy is inapplicable ; for 30 hectolitres of wine per hectare being an average yield, when the price is from 15*f.* to 30*f.* a hectolitre, or 450*f.*

to 900f. a kilomètre, 300f. per hectolitre cannot be afforded for a remedy of uncertain efficacy; for this would swallow up the entire margin left by labour, transport, casks, &c. Sulphuret of carbon can only be applied to high priced wines. A third remedy is the substitution of American for French stocks. American stocks, first introduced by a wine-grower near Bordeaux, are alleged to be the origin of the malady, the American Vine not being injured by it, and in this Vineyard I have seen one of the American stocks with 150 bunches of black Grapes upon it. Whether or not American Vines introduced the disease, people are afraid of planting them where the Phylloxera has not appeared, lest they should introduce it; but they have been tried in ordinary Vineyards already visited by the Phylloxera, where there was no fear of the quality of the wine being impaired. In Languedoc wherever the American Vines have begun to yield the Vintage has shown an improvement, but nobody is able to say whether in the case of the best wines the quality would be unaffected. Some argue that the stock is immaterial provided the grafts and soil are good, and that equally good Médoc would be produced by American as by French stocks. But no grower has ventured on the experiment for fear the reputation of his wines should be forfeited. The Phylloxera having, however, been detected in one of the best Médoc Vineyards, it will soon be necessary to combat the invader. The planting of American stocks requires four or five fallow years, and few growers can afford this interregnum.

Thus the problem remains unsolved; submersion being uncertain and of limited practicability, sulphuret of carbon being too costly, and replanting being slow and hazardous. Meanwhile nothing is more melancholy than the aspect of the infested districts. From the top of the hills all along Floirac, Loussiac, and St. Croix, you see large barren fields, lifeless houses, props without Vine: clinging to them, unrepaired and unfrequented roads, peasants engaged in a hopeless labour. From time to time my obliging companion and guide pulls up; we alight and pick up an infected root. With a microscope we see the yellow active parasite which covers the root with a thick layer, and pronounces sentence of death on the whole plant. Sometimes my companion shows me a plant having no longer either parasite or sap, and exclaims, "The rogues have decamped after killing the hen that laid the golden eggs." This afflicting spectacle makes you understand the adjective *vastatrix*, and I eagerly accept an offer to take me to some of the best Médoc Vineyards where the vintage is actively going on.—*Times* Special Correspondent.

Leaf-soil.—There should be no lack of leaf-soil next year, as the present falling crop of leaves on all kinds of trees is one of the heaviest we have had for years. In large places enormous heaps will be put together, and in small gardens, instead of following the evil example of the London gardeners, and burning them, they should be built into tidy square heaps, and when sufficiently decomposed, be spread over the surface of beds and borders and dug in. Although

not rich in manurial properties, yet leaves are a most valuable dressing for the soil, and soon decompose, keeping the soil open and fertile. Leaves whilst yet fresh make good covering, especially for the blanching of Seakale and Rhubarb, and assist with part manure in making up a steady hotbed for Potatoes, seeds, &c. The avidity with which worms draw the fallen leaves into the soil shows that they serve other useful purposes besides those enumerated.—A. D.

Plants of Importance in Dairy Farming.—Drawings and dried specimens of the following plants were exhibited by the Berlin Agricultural Museum at a recent exhibition in Berlin of dairy produce:—1. *Plants that Promote the Secretion or Flow of Milk.*—The milky juice of the fruit of *Aspidosperma Quebracho*, used in the Argentine Republic. *Carica Papaya*, the Papaw: the milky juice of the unripe fruits and petioles acts like *Cirsium arvense*, *Cynara Cardunculus*, *Ficus Carica*, *Oxalis Acetosella*, *Piper nigrum*, *Quercus infectoria*, *Rumex Patientia*. *Galium verum*, the true (German) Milkwort, does not encourage the flow of milk. 2. *Plants that Hinder the Secretion or Flow of Milk.*—*Cochlearia Armoracia*, *Fingicula vulgaris*, also *Sanicula europæa* is believed to act in the same manner. 3. *For Colouring Butter and Cheese.*—

Bixa Orellana, *Calendula officinalis*, *Carthamus tinctorius*, *Crocus sativus*, *Curcuma longa*, *Crotophora tinctoria*, *Daucus Carota*, *Morus tinctoria*. 4. *For Perfuming Cheese.*—*Melilotus corulea*, *Penicillium glaucum*. 5. *Plants which give a peculiar colour to the milk of cows feeding upon them:*—*a.* Colour reddish.—*Galium verum*, *Rubia tinctorum*, species of *Carex*, *Scirpus*, and *Equisetum*, of *Ranunculus* and *Euphorbia*, and young shoots of deciduous trees and Conifers are said to give milk a reddish colour. *b.* Colour yellowish.—*Daucus Carota* and *Rheum palmatum*. *c.* Colour bluish.—*Anchusa officinalis* and *A. tinctoria*, *Butomus umbellatus*, *Melampyrum arvense*, *Mercurialis perennis*, *Polygonum aviculare*, *P. Fagopyrum*, and *Rhinanthus major*. 6. The following plants give a peculiar sharp taste to the milk of cows feeding upon them:—*Allium ursinum*, *Artemisia Absinthium*, *Brassica Napus*, *Gratiola officinalis*, *Euphorbia Cyparissius*, *Helleborus niger*, *Matricaria Chamomilla*, and *Zea Mays*.—*Wiener Landwirthschaftliche Zeitung*.

The Double Flowering Golden Feather is known in the trade as Golden Gem, and is a yellow form of the common green kind. The foliage is somewhat lacinated, but not so handsomely as Osborn's kind, which is the prettiest of all the Golden Pyrethrums. The Golden Gem was originally offered as a bedding plant, but one season's growth showed that it was useless for that purpose, as the habit is loose, and each plant runs off to flower quite early. It is easily raised from seed, and therefore can be made to produce a large quantity of white flowers. If grown as a flowering plant, no doubt the green-leaved kind is the best, because the contrast with the foliage is much more pleasing. For edgings, margins, and carpet bedding the Golden Feather still affords the best yellow, but the fact that it is so easily raised from seed causes it to be so widely used that it soon becomes a nuisance.—A. D.



The Sidney Oak, Tenshurst.



View in the Park at Stowe.

THE FAMOUS PARKS AND GARDENS OF THE WORLD.*

A book on this subject really well done would be a very attractive one, and also very useful. The present work is attractive in all that concerns good engraving and good printing, but the famous gardens of the world are after all but poorly represented, though there are a great many pretty cuts scattered through the book, many of them more interesting from the point of view of art and wood engraving than gardening. The book, in fact, is a sort of translation or abridgment of Mangin's work on gardens, and illustrated by many of its cuts. It has often occurred to me that a book of this kind really well done would be a most valuable

Grand Trianon." To which question I can only say that I hope not. Persia is a sad and blighted land in many parts, I believe, but I trust it is nowhere so sad as the ruins of the dreary rubbish which we owe to what is called the "genius of Le Nôtre." In this world, so far as I have seen it, I have never seen anything so dismal as the garden of the Grand Trianon; and the daub in imitation of it must indeed be deplorable. From this book one turns to think of what good might be done by well-selected views of gardens which are really famous and beautiful. Some of our own private places would form very attractive and instructive ones, but you teach nothing by merely figuring a house, as is so often done in this book, neither do you teach much by showing, as a "landscape garden in Ireland," one or two common trees on a bit of level ground, as on page 159. There are a great many beautiful gardens abroad which we do not know enough of in this country, particularly some of the German and Austrian places; but even to illustrate the really remarkable gardens in our own country would be a grand work.

V.

one, and, so far as I have seen, nothing of the kind has as yet been attempted. It is usually done by persons who, in illustrating a beautiful place, are almost certain to omit the features that have any beauty or interest, giving us instead some fountain, hard building, or fantastic vignette which may happen to catch the designer's eye. The writing of this book is of the poorest kind, giving antiquated and small unauthenticated twaddle about old flowers and old gardens without the slightest point of utility. Here, for example, is a bit about Persia. "Has Persia had its Le Nôtre?" "To this question we cannot profess to give either an affirmative or a negative answer; but its royal gardens, if the traveller Chardin may be credited, bear a close resemblance to a sketch or daub of the

Kerosene for Insects.—A gentleman in San Francisco having in his conservatory various hard-wooded and thick-leaved plants covered with insects, tried, with only temporary success, the tedious and expensive plan of washing with soft soap; also syringing with various substances, including carbolic acid, which injured the tender growths. He then hit upon what proved to be a very effectual remedy, of which he says, in the *Californian Horticulturist*: I procured from a druggist an atomizer, and filling the bottom with kerosene, sprayed over a Camellia to be experimented upon. It was a very dirty plant, the branches and leaves of which were covered not only with scale, but with black fungus; a very small quantity sufficed to vaporise and cover the entire plant. After the fluid had evaporated and the plant was dry, the scales were found dead, shrivelled, and partly detached, and with the slightest touch fell off; the black fungus, also, which everybody knows is so tenacious on the leaf, was dried up into a loose powder, which a shake sent to the ground. I did not confine myself to the single experiment; but have since used kerosene in the spray on several other plants pestered and diseased with these parasites, Orange trees, &c. I have also tried atomized kerosene to destroy aphids on Pelargoniums and on

* "The Famous Parks and Gardens of the World." Nelson & Sons, London and Edinburgh.

the soft and tender flower buds of greenhouse Roses. I destroyed the aphids, but the new and tender growth of my plants was destroyed also.—*New York Tribune*.

THE FLOWER GARDEN.

HARDY PLANTS FOR WINTER FLOWER BEDS.

PLANTS suitable for the decoration of flower beds, after the ordinary summer bedding ones have ceased to be ornamental, have at various times attracted the attention of those concerned in such matters, and, as usual in such cases, much difference of opinion has been shown as regards the class of plants suitable for the purpose. I therefore just here allude to two or three of very easy culture which I used to adopt for this purpose many years ago. They are easily obtainable, and here let me observe that I hold the requirement of a plant for winter decoration to be, that it should look well immediately it is planted, which is certainly not the case with bulbs and many other plants that are recommended for this purpose.

Helleborus fœtidus.—This used to be one of my greatest favourites for the decoration of winter beds. Its singular foliage of an evergreen character resembles that of an exotic Palm more than anything else, and, as plants of it could be taken up with good balls of earth, it was an excellent one to remove, and so hardy that we often planted it in vases elevated on the top of a wall, and exposed to the severest winter winds, without its suffering in the least; and its flowers, which appear at Christmas or before, are no detriment to it, which is the case with many fine foliaged plants. It is, as I have said, a plant of easy culture, being, in fact, a native plant, but seed of it requires a long time to germinate, and it perhaps likes to sow itself under shrubs and in odd places, where it is often met with, and plants of 4 in. or 5 in. high have pretty foliage, although larger plants look better. It seems to like a chalky soil, or one abounding in lime, and most likely it is found wild only in such places as abound in these materials; but it thrives in ordinary garden soil, and when once obtained there are few but who would admire it. Many years ago I sent some plants of it to London to a person who occupied a high position as a decorator of public rooms and dinner tables, and he did not know it, but placed it amongst his choicest plants, and in the most prominent positions, and he may, perhaps, have increased his stock of it by this time, but it is not yet so common as it deserves to be. I believe that medicinally it is a poisonous plant.

Iris fœtidissima variegata.—This is a variegated form of the Gladwin, and is more persistent than most other kinds of variegated plants; at least I do not remember ever seeing it become green; and its foliage being at all times persistent, it is quite as useful as any of the Yuccas, and, being of easy culture, is more manageable. It is easily propagated by offsets, as it seldom flowers, and I never could make anything of it in that way; but when well grown it looks well either in summer or winter. The striking variegation of its foliage equals anything in that way that I know of. I presume its prototype to be a British plant, but I have never met with it wild.

Arabis albidâ variegata.—The merits of this dwarf plant are that cuttings or slips of it may be put in in November, and will invariably grow, looking well at first and all winter, and it may be planted as an edging around beds of something else, its neat-looking foliage contrasting well with anything around it. It also flowers at the same time as the green one, but for winter it is very handy as a dwarf plant.

Stachys lanata.—This woolly-leaved plant may be employed in the same way as that last named; slips of it grow equally well, and it is of easy culture.

Cineraria maritima.—Although plants of this do not transplant so well as some that are mentioned above, it may, nevertheless, be introduced here, and if all long slips of it be inserted in the ground up to their leaves they will mostly grow. Associated with it may be mentioned the two kinds of Lavender Cotton (*Santolina incana* and *S. Chamæcyparissus*) as described by your correspondent (p. 394), both of which I used to grow many years ago, merely distinguishing them by one of them being upright and the other spreading.

It will be seen from the plants named that their merits depend on their foliage, and that shrubs of various kinds may be added, but as these seem well known to all, I refrain from giving them here, but will only name one that is but seldom met with, and yet it is one of the most common and hardy of all, and that is the common Rue, the foliage of which looks very neat and pretty, and plants of it may

easily be obtained from cuttings, but the only place I ever remember to have seen it used with effect was in the garden of Mr. Mendell, near Manchester, where, in addition to the many other things for which this garden was famed, was a good supply of this plant being prepared for winter use. It is needless to observe that in addition to the above, plants remarkable for early flowering may also be introduced, and as they usually present a good tuft of foliage, their presence is equally acceptable in autumn and winter as in March or afterwards, although some of them, as *Arabis albidâ* often show flower in February, and the blue *Forget-me-not* soon after, but I leave it to someone else to extend this list.

AN OLD GARDENER.

ALPINE PLANTS AND ROCKERIES.

I AM afraid that Mr. Goldring has not mended the case as regards these plants by his last note. There is no doubt whatever that very often too much fuss is made over building rockeries, and, when they are built, they are of little use to grow plants upon. Allow me to point out a plan which I have adopted here—a very simple one—by which the conditions of success are secured, and the monotonous flatness obviated to which Mr. Goldring objects. It is nothing more than half sinking a few stones here and there in an ordinary herbaceous border. For instance, close to where I write, two stones are placed almost touching each other, one has a perpendicular side which rises 9 in. or 10 in. above the ground, and faces north-east; at the base of this two or three plants of *Cortusa Matthioli* are planted; here it thrives luxuriantly, just enough shade is obtained, and its roots being in contact with the stone and under it are quite at home. On the top, in the chink between the stones, *Dianthus alpinus* is planted; here this thrives to perfection, and has spread on each side over the stones. In other cases, three or four, or more stones are half buried, and the space between—following the undulations of the stones—are filled with soil. One of these patches is planted entirely with *Phlox Nelsoni*, another with *P. setacea*, another with *P. verna*, and so on. The plants fill up quite closely all the spaces between the stones, and creep up them, and in such masses can be very well seen. In another instance, at the base of a stone *Dodecatheon integrifolium* is planted in a patch, and in a little slope up between two stones occur two or three plants of *Primula rosea*; at the base on another side *Primula verticillata* (this is planted out early in spring), and among the stones on the top may be seen *Saxifraga longifolia*. In another, several plants of *Saxifraga geranioides* are planted at the base of a stone, and the interval between this and another is filled with *Epimedium pinnatum*. In another a tiny standard, on a 6-in. stem, of *Cytisus atro-purpureus* is placed towards one side, and one of the double-flowered *Genista tinctoria* on the other, and the intervals are filled with *Acaena microphylla*, and so on. All these groups are well varied and distinct, and it is quite endless the number of combinations a little taste will produce even with common materials; and all I have mentioned are common. It is the commoner, but none the less beautiful, plants that we want to popularise, and not those that are rare and difficult to cultivate; in fact, with many of these latter there is not enough of them to popularise with. A point that has generally been left out of discussions upon this subject is that most of these plants—one can scarcely tell why—look to best advantage when associated with stones; and there is the other fact that they not only look better, but do better. In all the instances I have quoted, none of the stones are more than 10 in. or 12 in. above the ground. I forgot to mention that in the group composed of *Phlox setacea*, close to the stones and towards the back, *Imris Pseud-acorus variegata* was planted, and this group was very charming.

T. SMITH.

Newry.

Useful Border Plants.—After a sunless season and continual rainfall, causing a great scarcity of flowers, the names of such as have done well here may be acceptable. After a good bloom of Alpine Auriculas, Polyanthus, and others of the Primrose tribe, the first on the list is German Pansies, fancy varieties; these have kept up a good bloom during the whole season, followed by *Myosotis dissitiflora*, *Coronilla* (the herbaceous kind), *Trollius*, *Campanula glomerata* *superba* (a good useful variety), *Lupinus polyphyllus*, *Delphiniums*, *Hemerocallis*, *Canterbury Bells* (Dean's strain), *Sweet Peas*, *Antirrhinums*, *Pentstemons*, *Rudbeckias* (still in full bloom, November 8), *Fuchsias*, *Hydrangeas*, and that fine old but neglected creeper, *Tropæolum tuberosum*, which has been grand for a long time, and it is still in full bloom and seeding freely this season. These are everybody's flowers, so to speak, as, to a certain extent, they take care of themselves; it is, therefore, to be regretted that they are not more extensively grown than they are. W. DIVERS, *Warton, near M. stone*.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Rare Plants on the Ormes Head.—In reply to a letter, signed Edwin Jackson, which lately appeared respecting the *Himantoglossum hircinum* (the great Lizard Orchis), I am somewhat surprised that it should have escaped the notice of Mr. Inchbald. However, such is the case. In the year 1870 I planted a fine specimen (which I found on the "Little Orme") in the garden of the late Mr. A. Schofield, where I have no doubt it is still growing. This year I collected several specimens on the "Great Orme," all of which have bloomed abundantly, having from fifty to seventy flowers on a spike. I have also collected nearly all the British Orchidaceæ, among them was a variegated specimen of *H. hircinum*, near Dover; but I regret, however, that like many of our native treasures, they are becoming scarce, and unless they are taken in hand by propagators they will soon be exterminated. Thousands of choice plants are pulled up root and branch, and taken away annually by persons who do not know their value. I am propagating a large quantity of the Orchis from seed; and next year, I shall have many hundreds of the great Lizard, which I shall have much pleasure in presenting any botanical friends, who, like myself, take interest in this rare and beautiful class of plants.—GEO. SIMPSON, *Llandudno*.

—The above extract from the *North Wales Chronicle* of Nov. 8 may be of interest to students of British wild flowers. The writer, who published his first letter under the signature of "Botanist," now reveals his name and address. He repeats his previous statement more emphatically and with greater confidence than before, that he has this year found the Lizard Orchis on the Great Orme, in which case he deserves the credit of finding it and adding one more to its few habitats; while to all students of wild flowers in this neighbourhood, it will be a great pleasure to add it to our local flora.—EDWIN JACKSON, *Llandegai*.

Iris Kämpferi Chelsea Hero.—This is a large and handsome double-flowered variety of Kämpfer's Iris, introduced from Japan. The flowers are flat and regular in form, $5\frac{1}{2}$ in. across, of a rich blue purple, lit up by a golden bar at the base of each of the six segments, which are closely imbricated, and spread out horizontally. The breadth of the segments, and the complete imbrication of the inner over the outer series, give a peculiar fullness to the flower.

East Lothian Stocks.—At present (7th Nov.) there is a wonderful display of these beautiful Stocks in flower in the grounds of the Metropolitan Cemetery, Morningside, Edinburgh, showing how well adapted those fine varieties are for autumn work. Mr. Cowie, the superintendent, has been a most enthusiastic grower of the East Lothian Stock for many years, and has been the means of introducing several new varieties. To him we are indebted for the beautiful sort named New Crimson, which is a sport from the old scarlet, and also for the fine white Wallflower-leaved variety, which is a sport from the old white; this latter variety also, originated with Mr. Shearer, of Yester. It would be well for growers of these Stocks to notice any tendency to sport in any of the single plants, as it seems to be the only way in which new kinds are to be obtained. This is my motive in directing attention to the above, as many are under the impression that it is only from seed that new varieties are to be obtained.—JOHN DOWNE.

Variegated Grasses.—I can add two more to your correspondents' lists of these. I have *Poa aquatica* very clearly and regularly striped with white in the summer, but towards autumn the markings disappear, and it is not to be distinguished from the type. *Arundo Phragmitis* I found well variegated in a muddy hollow on the cliffs near here this summer.—J. M., *Charmouth, Dorset*.

Double-white Rocket.—I beg to thank Mr. Elliot for his kind suggestions (p. 404), whereby I might obtain a plant of this Rocket; but I am sorry to say that I am unable to do full justice to a plant that is so scarce and choice, and therefore I must decline the offer so kindly made. I hope, however, to live to see it again more plentiful than it is now.—AN OLD GARDENER.

Pea Haulm and Slugs.—Some few weeks back I requested one of our men to clear a south border of Pea haulm, but being Saturday night it was left on the border till Monday morning, when under the haulm I found the ground covered with slugs. Therefore taking time by the forelock, I immediately ordered small bunches of Pea haulm to be placed round all quarters on which young green crops were growing, and we now, with a basket of lime, go round these every other morning, merely turning the Pea haulm and dusting the hot lime over the slugs. In this way we are fast exterminating these arch foes to gardeners.—R. GILBERT, *Burghley*.

NEW KIND OF GARDEN LABEL.

LOOKING at labelling in a general sense, nothing, so far as private gardens are concerned, can be more unsatisfactory, especially those in which the collection of plants is of some magnitude. Nurserymen and the managers of public and botanic gardens have each a system of their own, more or less commendable, or, as the case may be, not to be commended at all. I well remember my first visit to the herbaceous ground at Kew about the beginning of April. At that early season the display of plants was meagre, the most conspicuous feature being the display of unnecessary large labels. Over conspicuity in this case prevailed at the expense of neatness; business men soon discover which is the most practical, permanent, and most economical method. In their case numbers are mostly used, and one of the most durable and effectual methods which I have ever seen was the Oak staves of foreign flour barrels, neatly split, sawn into lengths, and boldly burn-marked with a number, the nine figures being sufficient to denote the vegetation of the whole world. I cannot even glance at the almost infinite variety of labels used or recommended. A great error, I think, is committed in private establishments in overloading well kept and beautiful shrubberies with glaring white earthenware labels, with the name in black, burnt in. I consider that the natural grace and repose of many a beautiful shrubbery is wholly cut up and destroyed by these ostentatious attempts at the scientific, carrying with them, as they do, too much of the shop, the cabinet, and the museum to be at all agreeable.

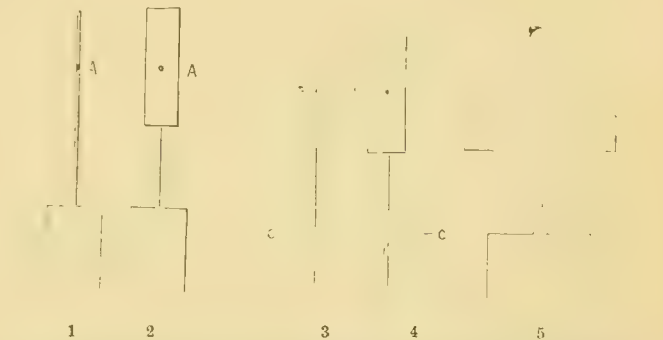


Fig. 1.—Wire frame without label. Fig. 2.—Frame with label attached. Fig. 3.—Single strong wire perforated. Fig. 4.—Wire with label attached; c, ground line. Fig. 5.—Objectionable form.

To those who grow, say, perhaps, 1,500 or 2,000 herbaceous and Alpine plants, permanent stereotyped labels are an impossibility; to such collections something is continuously being added, or, it may be, lost, and in such cases labels that can easily be obliterated, and used over and over again, must be adopted. Hence we are thrown on the small, common, deal label, and all the vexations consequent on its inefficacy, the cause of which is too well known to those who are compelled to use them largely. The capillary nature of the soft deal converts it, as soon as it is thrust into the damp or wet earth, into a kind of sponge; its tissues get gorged with water, and the slight coat of paint and the pencil writing perish, and the label itself becomes decayed, and breaks off at the slightest touch. Another great source of trouble with these kind of tallies or labels is the effect of frost. Owing to the porosity of the wood, it is always warmer, even during the most intense frost, than the soil in which it is inserted, and a slight vacuity is formed around each label, which, thus loosened, is thrown on the surface, on the expansion of the soil by frost, to become dry, and to be blown about by the wind. The evil of this is more real than may be imagined. After the frost of last winter I had in my garden at least 1,000 labels lying in confusion, sometimes two or three together, and I have had to discard in my time a collection of Sedums, Saxifrages, and Sempervivums, and latterly a collection of Epimediums, owing to the obliteration and misplacement of labels.

To counteract this ever-recurring torment I have devised what may be called a combination label, wherein the common soft deal label, in conjunction with wire, will remain perfect for years. Fig. 1, A, is a piece of wire (it need not be too strong) doubled close together for about 7 in., expanded at the bottom 1 in. each way, and then bent downwards 3 in. to form prongs, to thrust into the soil. On the double portion of the wire a 4-in. label is placed, rising a little above the wire; the label is pierced with a small hole in the centre, and a tack or small bit of lead wire is passed through it and the doubled portion of the wire and clenched behind, forming a rivet, when the label has the appearance shown in fig. 2, A representing the rivet. When the prongs of the label are thrust into the

earth there will be 3 in. clear between the soil and the label, thus preventing it from being spoiled by damp, or being bespattered by the rain with dirt; and as a label is always supposed to be close to a plant, the elevation of the label by the wire is not noticed. Another form of these labels, and more simple still, consists of one straight piece of stout wire, such as is used for fencing, cut into lengths of 12 in. (fig. 3). This wire is heated, and a hole made through it as at B, against which the label is placed and rivetted as before (see fig. 4).

Any ordinary workman, with a few tools and a square piece of iron fixed permanently on a bench as an anvil, would turn these out expeditiously, say twenty an hour, or, perhaps, what is better, a nailmaker would make them almost as fast and as cheap as nails. The wires need not be galvanised; tie them together, by means of bits of fine wire, into bundles, heat them hot, and drop them (*i.e.*, the bundles), into a vessel of tar; the wooden portion can be fixed on afterwards. Fig. 5 is a form of label I could not tolerate, though it is sometimes commended. When used in quantities its horizontal shape renders it too obtrusive.

THOS. WILLIAMS.

Grim Kirk.

NOTES OF THE WEEK.

Winter Blossoms.—Amongst plants that cheer us in greenhouses in winter, the Aбуtilons are beginning to have a place. They are distinct in form from most other flowers to which we have been accustomed at that season, and some of them are very pleasing in colour. Vilmorin's red form of the Chinese Primrose is a real gain to the winter greenhouse, and quite distinct from the strains that have hitherto been raised in this country. The colour is a fine rich rose-red, very cheerful in winter. What with this and the Cyclamens and zonal Pelargoniums, also so much improved in variety and culture during the past dozen years, the glasshouse in winter has become very different from what it used to be.

Pansies.—We have received from Mr. Hooper, of Bath, some handsome blooms of Pansies, which, owing to the open state of the weather, are now flowering almost as finely as in summer. Amongst the sorts sent were Wm. Gladstone, rich yellow, with a dark centre; Grand Duchesse, lemon ground with maroon centre, edged with the same colour; Duchess of Edinburgh, pale yellow with dark centre; Good Gracious, a large, bold flower, purplish-maroon, edged with pale yellow, streaked in the upper petals; and Grand Monarch, a large velvety-dark flower, with a light-coloured eye.

The Imperial Dahlia.—It is surprising that this stately and lovely plant is not grown more than it is in private gardens. Several plants of it in the Palm house at Kew struck us as being very beautiful—so graceful and delicate in colour—although not what we should call very strongly grown. By the way, is there not some mode of growing or grafting this, so that it flowers in a comparatively dwarf state?

Torenia asiatica as a Curtain Plant.—There are now some plants of this old favourite at Chiswick hanging down 4 ft. from the bench on which they stand, associated with the variegated trailing Grass which is so useful as a curtain plant. This is too often the only plant used, whereas the Torenia is more beautiful, its foliage and stems forming a graceful curtain whether the plant is in bloom or not; but as it is generally in flower it is, perhaps, the most desirable of all plants for the purpose just named.

Tomatoes.—The Tomato is becoming such a favourite that anything which enables us to get a greater supply of it is worth noting. At Chiswick a number of plants are fruiting nicely in the upper and warmer parts of the roof of a half-span house, and to reach the glass they have to be trained by a back wall about 7 ft. high on single stems. It merely shows the adaptability of the plant to almost any situation. There are many spare places in hothouses and greenhouses in summer where Tomatoes might be easily grown in quantities, and to reach any vacant position they may be as easily trained to grow 12 ft. as 2 ft.

Chrysanthemums in the Temple Gardens.—The annual display of these fine autumn flowers is now on view, and will be till the end of the month. In common with other classes of plants, they are not so fine as they would have been in a more congenial season, but still the exhibition is an excellent one, and is highly appreciated, judging by the continuous stream of people who visit it. There are upwards of fifty varieties at present in flower, and amongst them are several of the newer kinds, such as La Frisure, with rose-coloured and singularly-twisted florets, which show their white under-surfaces, and Nuit d'Hiver, which, like the preceding, is one of the Japanese varieties. It has saffron-tinted blooms, with the under-surfaces of the leaves yellow. Associated

with these is the brilliant deep red Mons. Crousse, and the beautiful varieties Empress of India, the Gazelle, and Marshal MacMahon. Elaine is another beautiful kind, and one which is well shown, the pure white blooms being very large and of fine form. Conspicuous amongst others are also fine examples of James Salter, Queen of England, Mrs. G. Rundle, George Glenney, Hereward, and others of the better-known sorts.

Watercress in the Kitchen Garden.—Water is by no means necessary to the successful culture of Watercress. In the gardens at Chiswick there is a border of it quite fresh and vigorous, and probably it would be more agreeable to most people than that taken from the usual Watercress beds, which are not always free from impurity. No doubt the season has favoured the land culture of Cress this year, but in many places on north borders it could easily be grown from seed as a common garden plant. Certainly in the autumn and winter good crops of it could be raised. Much as Watercress is now used, it deserves still further use. Abroad there is no more agreeable vegetable product. The little bed of Cress, in which a small beef steak often reposes in Paris, is delicious as an accompaniment, and so it is with fowl. The simple way of growing Cress just pointed out should make it easily obtainable anywhere; whereas, now it is often more common in towns than out of them, and usually in a crushed and wretched condition.

The White-stemmed Bramble.—This is a most important plant in the autumn garden, the white or silvery stems being seen at a great distance, and the growth being very vigorous. It seems best in warm soils in the southern counties. The fruit is both edible and delicious. At the present moment there are strong specimens of it both at Kew and Chiswick.

Galax aphylla in November.—This modest little plant should be taken from the obscurity of the herbaceous beds in botanic gardens, and the mixed border in the few gardens in which it is grown, and cultivated as a really beautiful ornament of the autumn garden. Its leathery and shining little leaves are, as we write, a most effective claret colour, and it would be very ornamental as groups or edgings in the choice collection of hardy plants.

A Silvery Tree.—At Kew, on the 10th of November, I was much pleased with the singular beauty of *Elaeagnus flava*, evidently a young specimen, it being the most decidedly silvery in hue of any tree I have seen. The under side of the leaf is quite silvery, glistening in fact, and when I saw the tree the margins of every leaf were turned up so as to meet, thereby exposing only the most silvery surface. I have noticed others of the same family giving strikingly picturesque effects, a particularly fine group being that in the Emperor of Austria's garden at Laxenburg, near Vienna, but this one at Kew is the brightest I have seen.—V.

Acanthuses in November.—Not a few of the things that used to be left in the solitudes of botanic gardens, and here and there in an old-fashioned collection, will one day prove to be really important elements in garden embellishment. Among these are the Acanthuses, which are now full of vigour and beauty, and therefore most useful in prolonging beauty in the open air garden in a mild climate like ours, where severe frost does not often come till the winter is nearly half over.

The Great Vinery at Chiswick is now worth seeing, a very good crop being ripe in it. The success attending the Grape culture here is to a great extent owing to the plan of replacing the old, but to some extent worn-out canes with young ones—a plan that is persistently carried out by Mr. Barron.

A Fine-leaved Climber.—*Cocculus indicus* is a name better known in the *Materia Medica* than in gardens, and yet it is, perhaps, for fine foliage the most valuable stove climber we have, and quite as good in a hothouse as the noblest varieties of Ivy are in the open air. The beautiful, large, finely formed leaves group themselves into picturesque masses of foliage, and make it one of the best plants that can be grown in a hothouse of any size. It may be seen at present in very good condition both in the Botanic Gardens, Regent's Park, and also at Kew.

Nerine undulata.—This charming bulbous plant, with its delicate rose-coloured flowers and wavy margin to its petals, is a most lovely object, and it should be more commonly seen in our greenhouses. I like it quite as well as some of the more showy kinds, and it seems of easy culture. It is in flower now plentifully.

Bauhinia tomentosa.—This plant belongs to a family that one very rarely sees in private gardens, and yet it is a very beautiful flower—soft clear yellow, with one rich brown spot on the upper petal. Lovers of uncommon and rare hothouse plants might secure it. It is a stove bush, and one which we should like to see grown better than it can be in a miscellaneous botanic collection. We notice it in the Palm house at Kew.

Aralia Sieboldi in Flower.—Planted out and strong in a cool house, the flowers of this fine-leaved plant are not without beauty of a singular kind. The individual little heads somewhat resemble the flowers of the Ivy in shape, but they are borne in an enormous panicle, the whole being ivory white. There is a striking specimen of it in the temperate house at Kew just now. In pots the same plant is not at all so noticeable.

Agapanthus umbellatus has this autumn been in finer condition and more persistent bloom than I ever remember seeing it before. I have seven plants of it in 15-in. pots, with from six to eight spikes of bloom each; these have been in full flower for the last five weeks, and, should the frost spare them, appear likely to remain attractive for another month. The flowers of this plant are usually of comparatively short duration, but I attribute the exception this year to their late blooming and to the fine cool time which they have enjoyed during that period. I may add that one of my plants is a variety called major. It is in every respect superior to the old form, being taller, more robust, and yielding larger flowers.—J. M., Charmouth, Dorset.

Indigofera juncea.—This is a quaint looking greenhouse plant with rose-coloured flowers and very narrow leaves, which, well grown, might be an elegant object in a certain division of the greenhouse, trained on a slender pillar, or over an arch. It is in bloom in the temperate house at Kew.

D'Ombra Testimonial.—It is proposed that this be presented to the Rev. H. H. D'Ombra at the annual meeting of the National Rose Society, which will be held at the Horticultural Club, on Thursday the 11th December next. Therefore, those who wish their names added to the list of subscribers should signify the same at their earliest convenience, either to Mr. William Scott, 1, Old Bond Street, or to Mr. Edward Mawley, Addiscombe, Croydon.

Arundo mauritanica.—This noble Grass is now in bloom in the Victoria house at Kew, bearing green and most graceful large fox-brush shaped panicles, in some cases 2 ft. long. We believe it is hardy out-of-doors, but requires the hothouse to bring it into flower. As the name indicates, it is a native of the shores of the Mediterranean.—V.

Ruta albiflora.—Mr. Green brings us this delicately beautiful hardy Himalayan Rue. It stood out last winter at Pendell Court, and Mr. Green used to grow it in old times in that wonderful collection at Hillfield. It is a very curious plant, quite unlike the common Rue in its flowers, and with a light, graceful foliage like that of a meadow Rue. The pretty little white flowers are arranged in an elegant candelabrum-like manner.

A Good American Apple.—We noticed recently some excellent American Apples called the White Pippin. It somewhat resembles the Newtown Pippin, and is, we fear, often sold for that variety. It is a most delicious Apple, particularly excellent for cooking, and we should recommend everybody to try it who cares for a good cooking Apple. It is, or should be, sold for about one-third the price of the Newtown Pippin. It is sometimes called in America the Canada Pippin, is of the same class as the Newtown, and is said to be a very regular and good bearer. It is rather a large Apple—yellow, with small dots, and a dull blush, and, compared with other fruits, somewhat highly coloured. The flesh is very tender, and of a brisk juicy flavour. The more of these Apples the Americans send us the better. As has been stated it is a good culinary variety, and for eating it is also almost or quite as good as a Newtown.

Chrysanthemums at Slough.—The collection of these popular autumn-flowers in Mr. Charles Turner's nursery will be well worth a visit shortly, as it comprises, besides the majority of the older varieties, many novelties of decided merit. The principal show house is a light, airy structure, admirably adapted for showing the blooms off to the best advantage. It is scarcely necessary to add that this collection, in common with most others, is not in such fine condition, owing to the ungenial season, as we have hitherto seen it.

North-western Amateur Chrysanthemum Society.—The annual exhibition of this society was held in Milton Hall, Hawley Road, on Monday, Tuesday, and Wednesday last, and was numerously attended. Both plants and cut blooms were also abundant and good in quality. Mr. Newman obtained a silver cup for the best twelve cut blooms incurved—a beautiful exhibition. Special prizes were taken by Mr. Leggett for the best cut Pompones—very good specimens. Mr. Charlotte was awarded a silver cup for twelve fine plants. Mr. Brown, jun., won a prize with all the varieties exhibited by him, amongst which Mrs. George Rundell was conspicuous, and Golden Christine secured a reward to Mr. Morris. The table decorations of Mr. Bishop were very tasteful, especially the centre-piece, a vase of cut blooms.

Seaforthia in Fruit.—In the Palm house at Kew a tall, stately, and graceful Palm (*Seaforthia*) bears a beautiful drooping panicle of fruit—the whole fruit and stem ivory white, and the plant one of the most graceful objects in the vegetable kingdom.

THE KITCHEN GARDEN.

AUTUMN-PLANTED POTATOES.

If any propose to test the value of autumn planting Potatoes now is the time to do so. There can be no doubt that in a state of nature the soil is the proper place for the tubers during winter, and, without doubt also, they there keep sounder than when exposed to the air, notwithstanding all that may be said to the contrary. It is a common experience that the strongest plants invariably come from self-planted tubers, and where such is the case as good results may well be looked for from those properly planted in the autumn. There are, however, several conditions to the success of autumn-planted Potatoes that must be observed, and, unless these are observed or exist, it will be better to refrain from planting till the spring. In the first place the soil must be of a light friable texture and not retentive of moisture; then slugs, grubs, and wireworms must not abound; next, hard frost must be excluded from the sets; and, not least, plenty of space must be allowed between the rows, that a good covering of soil may be placed over them for protection. The best kinds for autumn planting are late and medium late sorts, but late ones are specially suitable for the purpose, as, if planted now there will be no undue excitation of growth until late in the spring. Early kinds planted now would doubtless throw up growth in March, and thus be killed back so far as to render the seed valueless. Not less than 3 ft. should be given between the rows, and when the sets are planted they should be put in open furrows, so as to admit of a liberal dressing of lime and soot being cast around each. This would prove most efficacious in keeping grubs, slugs, and wireworms at bay. With plenty of space between the rows, and the sets planted quite 6 in. deep, it would not be difficult to cover them over to a depth of 12 in. with light dry soil, and this ought to exclude all frost from the seed. In the spring several inches of this mould may be drawn off again, and thus the soil beneath, protected from heavy rains as well as frost, would be light and porous for the young shoots to come up through. It is the possible danger from frost and from vermin, and the possible collapse of the seed tuber from disease that tend so much to keep planting over till the spring. Without doubt, next to autumn planting, the present common course of keeping the seed tubers exposed to the light and air is the best, as it prevents undue excitement of the eye-buds, and the tuber is not exhausted before planting time arrives.

A good deal is still written about the deterioration resulting from clamping, and that it is the chief cause of the Potato disease; but all good growers house their seed on the soundest principle, and they unfortunately do not escape disease more than their neighbours. For late kinds it is, without doubt, advantageous that they should be induced to mature their crop as early as possible, and autumn planting on dry soils does conduce to this, as well as to the production of a better crop. Like bulbs, Potatoes throw out roots in the dark, and get well established in the soil before foliage is made, and no doubt self or autumn-planted Potatoes get in this sense a good start ahead of tubers planted in the spring, and therefore an earlier and larger crop results. A. D.

Magnum Bonum and Champion Potatoes.—In offering a few remarks on these two Potatoes, I am sorry that I cannot date my experience from some "hall" or "castle," so as to give them some weight. However, I live in a very large garden, where the Potato is, perhaps, grown as well as anywhere in the country; I mean nearly one-half of Lancashire. It is in such places where experience may be learned about any given variety of Potato, and reports, even from a dozen well-ordered private gardens, must be unsatisfactory compared with those from a dozen Potato parishes. At the present moment the Champion is pre-eminently the champion—the Potato of the day and of the market; the latter fact being the crucial test of the value of an article, as the Champion has superseded that very famous Potato, Paterson's Victoria, and at the present time is fetching the highest price obtainable for Potatoes, and has proved to be the best disease-proof Potato ever grown, not even excepting the once famous Fluke. How long it will maintain this position is a problem. The law of the Medes and Persians cannot apply to the quality or durability of the Potato. As to *Magnum Bonum*, I may say it is a misnomer; take away the *B onum* and leave the "*Magnum*," and the name may be descrip-

tive; a very fine handsome Potato, far better on the exhibition table than in the kitchen, and, so far as eating is concerned, having very little "Bonum" about it. This is the verdict of a jury composed of most of the Potato growers in these parts, and, more important still, that of the buyers and sellers. Soil and locality no doubt have a good deal to do with the quality of a Potato, and I believe that soap ball, the Early Rose, is fairly good when grown almost in pure sand. There is a famous Moss-land Potato grown in these parts called Skerry Blues, one of the coarsest-looking Potatoes known, all knobs and eyes, like a Jerusalem Artichoke, but when cooked well fit for a Royal table. In conclusion, I may add that any remarks or reports on the Potato must only be considered temporary—for a time and a season; and I am afraid that Mr. Baines' observations on the Potato must be rather considered historical than otherwise, as they have very little to do with the "Potatoes of the period," as a Potato that has held its own longer than any other—the early and universally grown Pink-eyed Kemp—is not even alluded to.—THOMAS WILLIAMS, *Ormskirk*.

Parsnips.—These useful roots have apparently enjoyed the cool wet season, being generally one of the best crops of the year. It is to be regretted that they are not more generally grown and appreciated than they are, as a large quantity of useful vegetable food might in their case be grown on a small area, and, in a season like the present when Potatoes are badly diseased, and such as are sound not up to the usual standard of excellence, any good substitute is welcome. In addition, too, to being easily grown and not much affected by disease or pests that ravage other crops, the Parsnip will keep in good condition during the whole of the winter and spring months. I find the Student and the old Hollow Crown variety to be all that can be desired as regards sorts, and if sown in drills 18 in. apart in March, in deeply cultivated soil, and thinned out as soon as the rows fairly show themselves, kept clean by frequent hoeings during the summer, and lifted as required for use in winter, and the remnant lifted before growth commences in spring, and stored in a cool cellar, they always form a useful reserve vegetable, doubly valuable when green crops fail, or are cut off by frost.—J. GROOM.

Peas at Darley Abbey.—On visiting Darley Abbey a few days ago (about the 3rd Nov.) with a friend, we found Mr. Keetley still gathering Peas—fine luscious Marrows with large well filled pods such as we have never before seen so late in the season. We shelled and tasted, and made notes, Mr. Keetley informing us that it was a new Pea named Culverwell's Giant Marrow. It had been sent to him for trial; he thinks very highly of it, and, judging from what we saw and tasted, this bids fair to become a general favourite, being larger in pod and Pea than the well known Telegraph, and a very heavy cropper.—VISITOR.

Disease-resisting Potatoes.—So valuable is a Potato like the Champion in this season of disease, that too much can scarcely be said in its praise, particularly where Potatoes have to be grown on cold clay, as they are in this locality, and where most other sorts are nine-tenths diseased, while the Champion is a good crop, in which there is scarcely a diseased tuber; but what I wish to call attention to is the quality. Last season, when the Champion was cooked, it turned out quite solid; but this season, being almost sunless and wet, it turns out like a ball of flour. Other sorts are generally just the reverse. The next best Potato to the Champion is Skerry Blue, which is small, but pretty free from disease. In the light soils of Cheshire this variety is excellent, but the old favourite, Paterson's Victoria, under another wet season will clearly be stamped out by disease. Magnum Bonums are scarcely at all grown hereabouts.—JAMES SMITH, *Waterdub*.

The Champion Potato.—Mr. Elwes, writing to the *Gardeners' Chronicle*, in confirmation of a statement by Mr. Cannell, says:—I planted 15 cwt. of Champion on poor, light, limestone brash with very little manure, and as the land was by the end of the summer quite overgrown with Couch, Chickweed, and wild Sage, I did not expect much of a crop. Side by side with the Champions were planted 10 cwt. of Paterson's Victoria, a good strain from Scotland, and 5 cwt. of Scotch Regents from a market grower in the neighbourhood. Of the Champions hardly any were diseased, and the crop was about 3 tons; of the Victorias, half were diseased and the crop about 14 cwt.; of the Regents nearly all were diseased and the crop only about 3½ cwt. I have always hitherto believed that for hardiness, produce, and quality Victorias were the best field Potatoes, but, though Champions have the great disadvantage of deep and numerous eyes, and are not so salable as Regents or Victorias, I should certainly recommend them as a poor man's Potato, on bad land, in preference to any other I have tried.

—Mr. Buggins, Woodlands Castle, Clonsilla, Dublin, also speaks favourably of the Champion. He says:—We have just ploughed up about 2 acres of Potatoes, namely, White Rocks, Kemps, York

Regents, and the Champion. The result in the case of the first three varieties is the same as those mentioned by Mr. Cannell, while the Champion has turned out a sound, clean, and good crop. Taking into consideration the heavy and cold soil of this locality, and the extraordinary season that has been experienced by us, I think this Potato has proved itself worthy of notice; and where large quantities are required for a winter supply, people will undoubtedly find this variety one upon which they may rely; at the same time, perhaps it will be advisable to hear an account of its keeping qualities at the close of the season.

EFFECTS OF THE SEASON ON FRUIT TREES.

It will, I think, be found that this exceptionally wet, sunless season has exercised a most baneful influence upon many fruit tree plantations. Not only is the fruit crop scanty, and the quality generally poor, but I much fear that in many instances a very serious injury has been inflicted upon the trees—an injury from which they will scarcely ever thoroughly recover. A writer in a contemporary expresses the opinion that the injury in question is due to blight and caterpillars; I am myself strongly of opinion that to unsuitable soil and defective drainage, in combination with a cold, ungenial atmosphere, may be traced the miserable condition in which many fruit tree plantations are to be found at the present time. The conclusions at which I have arrived upon this subject are based upon observations which I have had the opportunity of making this summer. I have invariably found that when the trees were growing in unsuitable soil, or where they could easily penetrate into a cold subsoil, or where the situation generally was cold or otherwise unfavourable, they have all more or less suffered. In many instances old trees are killed outright; and young plantations, which hitherto have grown vigorously, have become prematurely old, and are now presenting a lamentable appearance, the foliage being long since turned to a sickly yellow hue, and the entire aspect of the trees denoting extreme distress. It is very doubtful if such trees can again be depended on to produce good fruit, for if once the wood of the Apple and Pear tree becomes knotted and the growth checked, they scarcely ever appear to regain their normal vigour. Where, on the contrary, the trees have been well cared for, and good judgment brought to bear upon the selection of situation and the preparation of the soil, not only do the trees appear not to have suffered, but they actually seem to have rejoiced in the excess of moisture which has this summer been so inimical to most forms of plant life.

An illustration of this may be found in the fruit trees in the kitchen garden at St. George's Hill, Byfleet. A more healthy growth than they have made it would be difficult to conceive, the foliage being broad and lustrous, the wood vigorous but hard, indicating a most perfect condition of the functions of nutrition, and giving promise, should we be blessed with a favourable spring, of a bountiful crop of fruit. The difference between these trees and many others in the immediate neighbourhood is so great that a few words concerning them may not be considered out of place, and may perhaps be acceptable to intending planters.

Adverse seasons often afford valuable lessons, they teach us what to avoid, and it behoves us not to forget that which we have to pay so dear for. With respect to the trees in question, their success may be attributed to the care taken to ensure the conditions necessary to their well-being. In the first place, when the garden was formed extreme precautions were taken to ensure perfect drainage. Five drain pipes were placed together at intervals of 10 ft. in two layers, thus making provision for aeration and the quick discharge of all surplus water. In this manner the drainage was certain to remain good, the natural consequence being that the roots have never suffered from the large amount of moisture which has this year passed through the soil. The soil itself was also thoroughly stirred, and, if I remember rightly, a considerable amount of charcoal dust was incorporated with it. Since the trees have been planted the garden has been well manured and stirred, and cropped in the ordinary way. I should add that the garden is encircled by forest trees, which afford a certain amount of shelter, but do not exclude sun. What has been done in one place may be effected in another, for although unfavourable situations cannot, even with the best of care, be made to equal those naturally fitted for the growth of fruit trees, yet much may be done to improve them. Perfect drainage, shelter, and a well-stirred and properly enriched soil constitute the main elements of success in the culture of our hardy fruits. If any one of these essential points be neglected, failure at some time or other will inevitably occur. I have been induced to dwell somewhat at length upon this subject as I have this summer seen so many instances of lamentable ignorance displayed in planting fruit trees. Only a few days since I remarked two orchards of young trees, extensive plantations, both of which have not and can never be anything but a source of disappointment to

the owner. The trees have been planted without any previous preparation of the soil, and apparently without any care having been taken to ensure good drainage. I need only mention that Rushes are growing luxuriantly around the trees to afford a pretty accurate idea of the character of the soil in which the roots have to work. It is almost needless to say that the wet summer has nearly killed the trees, and where still alive they will never make any satisfactory progress. Planting in this manner is simply waste of time and money.

J. C. B.

GARDENERS' FRIENDS.

SYRPHUS PYRASTRIS.

THE flies belonging to this genus are very common, but comparatively few persons, when they see them hovering in the sunshine or settling on flowers, know what a debt of gratitude we owe to these insects, and of what immense benefit they are in our gardens and fields, or how different our flowers and crops would be were it not for the assistance we receive from the grubs of these flies in destroying the aphides which so overrun vegetation. These grubs may very frequently be found on plants which are attacked by aphides, and persons no doubt often kill them when destroying the aphides, imagining that their plants are suffering from the combined attacks of grubs and green fly. In this they make a great mistake, as one



Syrphus pyrastris.

of these grubs will clear a shoot from aphides in a comparatively short time, and in no way injure the plant. These grubs are long and soft, and are widest at the tail, and gradually taper towards the head, which terminates in a point; they are semi-transparent, and green or yellowish in colour. *Syrphus pyrastris* belongs to the Natural Order Diptera, or two-winged flies, and the family Syrphidæ. The genus *Syrphus* contains twenty-eight species, whose economy is very similar. Nearly all the species are of a dark colour, with white or yellowish bands on the body, but in some species the bodies are much rounder and narrower than in others. Sometimes persons take them for wasps, and it is fortunate, therefore, that they are endowed with the power of rapid flight, for if otherwise ignorant persons would often kill them. The flies may be found almost everywhere from the end of May to the end of October, and are so common that Mr. Curtis has stated that he believes that they are in a great measure the cause of the incessant buzzing which may be heard on still warm days in the country. These are the flies which may so often be noticed hovering in the air like a hawk, in the sunshine under trees, or in some sheltered place, with their wings vibrating so rapidly as to be almost invisible. They will remain for some moments apparently motionless, and then suddenly dart off with the greatest rapidity. It requires a very quick hand to catch them, even with a butterfly net. The females have the instinct to lay their eggs, which are white and reticulated, singly on

the stems and leaves of plants infested with aphides. The little grubs are soon hatched, and at once begin their career of slaughter. As they have neither eyes or legs it might be supposed that they were quite helpless, but the reverse is the case. The underside of the last joint of the body is provided with tubercles, with which it manages to hold on to the plants pretty tightly, and its mouth is furnished with a kind of double-pointed hook. When it wishes to move it extends its head as far as it can, and lays hold of the substance on which it is with the points of its hook, and draws its body, contracting it as much as it can, as far forward as possible, and then again extends itself. In this manner it proceeds at a tolerable pace. Thanks, however, to the forethought of its mother it does not often require to move much, as it is surrounded by its prey. It is very interesting and amusing to watch one of these grubs feeding. It attaches itself firmly by the posterior half of its body, and, raising its head and the front part of its body, strikes boldly and quickly right and left until it touches an aphid, which it immediately seizes, and, holding it up in the air (see the figure) so that the insect cannot lay hold of anything to assist it in escaping, sucks it completely dry, turns its head towards one side, drops the empty skin, and begins searching for another in the most business-like way. I have seen one suck out the contents of a full-grown Rose aphid in a minute and a half. They will continue eating one after the other as fast as they can for some time. When full grown they attach themselves by the tail to a stem or leaf, and assume the chrysalis state. Whilst undergoing this change they alter their form very much; instead of gradually decreasing in size from their tail towards their head, the tail becomes very narrow and the head much enlarged, so that when the transformation is completed the chrysalis has much the form of a small Pear hanging against the stem. The chrysalis is formed by the skin of the grub contracting and hardening, and not by the grub casting its skin and appearing as a chrysalis. The insect remains in this state about a fortnight, when bursting open the larger end of its case, it emerges as a perfect fly. The grubs are often attacked by a small fly, one of the Ichneumonidæ, whose grubs are parasitic in their bodies. Those which have been attacked become much darker than the others, and look unhealthy. *Syrphus pyrastris* is about $\frac{1}{2}$ in. to $\frac{3}{4}$ in. in length, and measures across the open wings about 1 in. The head is yellowish, with large coppery eyes and small black antennæ. The thorax is of a shining metallic bluish-green colour, fringed with yellow hairs. The body is oval, flat, and shining, black or bluish-black, with a long yellow or white curved spot on each side of the first three joints; these spots nearly meet on the middle of the back, and sometimes those on the second and third joints do join; the two following joints are edged with yellow posteriorly. The legs are yellowish-brown, the base of the thighs and the feet being rather darker than the rest of the legs. The wings are colourless, but are slightly iridescent, with dark brown nervures. The grubs, when extended to their full length, are about $\frac{1}{2}$ in. long, narrow, and fleshy, gradually increasing in width towards the tail; they are greenish or yellowish in colour; on either side of the middle of the back is a broad white line; these lines join near the end of the body; between them the back is purplish, and so transparent that the internal organs of the grub are clearly visible, and their movements can be seen with ease. At the tail of the grub, just behind the white line, is a double-headed tubercle, which is connected with the breathing apparatus. The chrysalis is about 3-10ths of an inch long, and shaped like a flask or Pear. When first formed it is of a pale pinkish-brown with darker brown markings in front down the middle.

G. S. S.

Euphorbia Juice Preserving Iron from Rust.—The protection of ships' bottoms from corrosion has proved a difficult problem to owners; but the fortuitous discovery that the juice of plants of the Order Euphorbiaceæ, common and luxuriant in tropical climates, preserves iron from rust, is likely to be usefully applied to the preservation of those portions of ships below the water-line not only from corrosion, but from fouling. It seems that during the survey of Natal, some two or three years ago, one of the officers found that, when certain plants of the Order named were cut during the clearing, the knives were firmly coated with the abundant gum which exuded from them, and that the knives thus coated did not rust. In consequence, experiments with the gum in question were afterwards made by Sir Andrew Clarke, who some two years ago had a sheet of iron coated with it immersed in the waters of the Chatham Dockyard, where everything becomes rapidly foul. On being taken out it was found to be quite clean. The gum is intensely bitter and poisonous, which prevents the adhesion of marine animals to any substance with which it may be covered, and, as the plants supplying it are found in abundance on the seaside in low latitudes, even if this agent should prove only moderately efficacious, it may prove of great service to the shipping interest.—*Iron.*

ANSWERS TO CORRESPONDENTS.

Diseased Orchid Leaves.—*G. T. W.*—We cannot account for the deep discoloration of the leaf belonging to *Angreum eburneum* sent. Its cells are decomposed and deeply discoloured—there is no fungus inside or out. Not being on the spot we cannot suggest a cause for such a state of things, and it is far more difficult to suggest any remedy. The leaf examined was surcharged with moisture, and this may possibly suggest a hint for future treatment. One requires to know the complete surroundings of a diseased plant before an opinion can be expressed respecting it.—*W. G. S.*

Fibres Used in Brush-making.—You will oblige me by giving the botanical names of plants yielding the various fibres used in brush-making, viz., Kittool (dyed black and oil drawn, so far artificial), Mexican fibre, Piassaba or Bass, Monkey Bass, and Whisk. I have heard that Whisk is a Grass called *Holcus Sorghum*, but all specimens do not seem to be alike. I consequently fancy two or three different species of Grass are used, and called Whisk indifferently.—*TEE PEE.* [The fibres referred to as being used in brush-making are produced by—1, Kittool *Caryota urens*; 2, Mexican fibre—*Agave americana*; 3, Piassaba or Bass—*Attalea funifera* and *Leopoldinia Piassaba*; 4, Monkey Bass is probably the same as the last; 5, Whisk—*Sorghum vulgare* and *Cymbopogon Gryllus*.—*J. R. J.*

Pelargonium Cuttings.—Can I take cuttings of these and strike them now? Do *Pelargoniums* need heat in winter?—*J. P.* [It is not advisable to strike *Pelargonium* cuttings now, it should be done in spring—say early in March—as then the old plants, if cut back, will at once break again, and the cuttings will also soon make roots and will not suffer from damp. Heat would be injurious at this time of the year; all that is needed is to keep out frost; but extra heat in spring will be of great service, as that is the natural season of growth.—*A. D.*]

Begonias losing their Leaves.—*J.*—*Begonias* belonging to the tuberous-rooted section die down in winter; but they will re-appear in spring. Your plants, being in pots, should be gradually dried off, but not shaken out from the soil, as this is better done when the roots are re-potted in spring. A gentle heat is necessary to keep the plants in leaf and bloom at this time of the year.—*D.*

Preserving Carnations in Winter.—*A.*—Carnations are very hardy, and rarely suffer from frost, except when very severe, when a few small branches of some evergreen stuck around the plants should protect them fully. Keen cutting east winds often do more damage than frost, but any little protection is worth giving in order to assure the safety of the plants.—*D.*

Plants for Arbours.—Will you kindly furnish me with the names of a few common plants with which to cover an arbour?—*B.* [The common *Banksian* Rose, which is fairly evergreen and a strong grower, and the Japanese Honey-suckle, which is also evergreen, and makes a dense cover. Either of these should mix well with Ivy, which is after all the best of climbers. *Jasminum nudiflorum* is also a good plant to furnish bloom for the winter.—*D.*]

Rudbeckia purpurea.—Can any one tell us what has become of this *Rudbeckia*? or where it can be bought? Has it quite disappeared from the land? The name used to appear in several herbaceous catalogues, but now I can find it none.—*C. W. Dob, Edge Hall.* [Probably you find it catalogue as *Echinacea*, which is synonymous with *Rudbeckia*. The variety intermediate of *E. purpurea* common enough in any of the large hardy plant nurseries.—*W. G.*]

Names of Fruits.—*G. W.*—1, Seckel; 2, apparently *Marie Louise*.

Names of Plants.—*J. A.*—1, *Nephrodium involutum*; 2, *Polypodium Billardieri*.—*W. R.*—1, *Aspidium acrostichoides*; 2, *Aspidium filicatum caryotidum*.—*H. W.*—1, *Asplenium Belangeri*; 2, *Aspidium aculeatum lineare*; 3, *Nephrodium Shepherdii*.—*C. T. D.*—1, a *Pellaea*, probably new, send mature frond; 2, *Asplenium lasiopteris*; 3, *Asplenium Filix-foemina furcillatum*.—*Phoenix*.—1, *Selaginella Braunii*; 2, *Nephrodium setigerum*; 3, *Pteris serrulata cristata*; 4, *Asplenium umbrosum*; 5, *Pteris tremula*; 6, *Spiraea Filipendula fl.-pl.*—*T. L.*—1, *Cystopteris fragilis*; 2, *Adiantum cuneatum*; 3, *Pellaea rotundifolia*.—*G. W. O.*—*Asplenium Filix-foemina pannosum*.—*A. R. W.*—2, *Begonia Richardsii*; 3, *Begonia near nitida*; 5, *Begonia angularis*; 6, *Begonia semperiflorens*; 7, *Begonia Héne Uhler*; 9, *Begonia papillosa*; 10, *Begonia Ingrami*; 11, *Cystopteris fragilis dentata*; 12, *Blechnum occidentale gracile*; 13, *Polypodium Robertianum*.—*J. W.*—*Pyrus Aria obtusifolia*.—*Conifers*.—Next week.

Maple Leaves.—*Anon.*—The black blotches on the leaves sent are the work of a fungus called *Rhytisma acerinum*.—*W. G. S.*

Stobæa purpurea Seeds.—Some time since you had a coloured plate of this hardy plant. Can you tell me where I can procure some seed of it?—*T. L. O.* [Try Mr. Thompson, Tavern Street, Ipswich.]

Questions.

Double White Violet.—With me the Violet is a natural weed, and sometimes intrusive, growing and overwhelming other plants; therefore when I learnt that a double white one could be had, I at once secured a clump, and planted it where its relatives, the common blue and white, grew most advantageously, not in the least doubting its ultimate success. For two seasons, however, I have been doomed to disappointment. The original clump now represents more than a square yard of luxuriant leaves, but I have only seen three or four flowers and a few buds, the latter curling up and dying off soon after their appearance. From what I have seen of the flowers it is a Violet that deserves the utmost attention. They were as large as a fourpenny piece, extremely close in the petals, and strongly perfumed. If any of your correspondents have tried this Violet and have succeeded, I should be thankful to learn the treatment which it requires; and to those who like to cultivate it I may say that no pains or trouble will be thrown away to succeed with it.—*W. T.*

Neapolitan Violets.—This year I have planted these out in summer taking off the runners, and moving them to the greenhouse in September; but up to this time no flowers are visible; however, I do not despair, for it is evidently a late flowering variety, as such flowers as have been seen did not appear till the beginning of May this year. Every possible care was taken with the soil and drainage, the former being some of the garden soil in which Violets grow naturally; to this was added yellow loam and sand, the whole being well incorporated. The point upon which I am inclined to speculate is some stimulant, and therefore I am induced to ask what manure may I use with safety, seeing that all the Viola tribe are injured by using manure?—*W. T.*

Hornbeam Trees.—Will some of our readers inform us where the largest and best Hornbeam tree is to be found?

Rare Plants.—Will any reader be so kind as to tell me where I could procure *Lobelia Tupa* by purchase or otherwise? It is also called *Tupa Feuillet*. I find great difficulty in obtaining some other plants such as *Narthex asotida*, of which neither plants nor seeds appear to be derivable from any of the usual

sources. *Ferula persica* is another fine old plant I have long sought in vain. *Vella Pseudo-cytisus*, *Nelumbium luteum*, and *N. aspericaule* are others which I desire to possess, and to that end shall be thankful for any information.—*B. W.*

Fuchsia Tom Thumb.—Will any reader of THE GARDEN kindly tell me the origin of this pretty dwarf hardy Fuchsia. *J. G.*

Saddle Boilers.—I should be much obliged if any competent or engineering authority would explain satisfactorily in what respect a plain saddle boiler is inferior in principle to a terminal-end, a winged, or flued saddle, or any other form of horticultural boiler now in use, the heating surface in both cases being equal?—*J. S.*

St. Pancras Gardens.—Lady Burdett-Coutts has recently presented to the vicar, churchwardens, and vestry of St. Pancras what is termed a memorial sun-dial, standing upwards of 30 ft. in height, and erected at the expense of Lady Burdett-Coutts at a cost of upwards of £2000. It is intended to commemorate not only the reclamation of the disused and dilapidated burial grounds and their conversion into a beautiful ornamental garden for the recreation of the poor, but also those whose remains were known to be interred in the two ancient burial grounds of St. Pancras and St. Giles's-in-the-Fields. The memorial stands in a prominent position in the garden near one of its western main entrances, within a space corresponding to that of the mausoleum erected by the late Sir John Soane. It will be recollected that the vestry of St. Pancras, with the approval of the ratepayers and the assistance and sympathy of Baroness Burdett-Coutts, the Duke of Norfolk, and others, successfully resisted the attempts of the Midland Railway Company, who had already obtained by an Act part of Old St. Pancras Churchyard, to further encroach upon that as well as the adjoining cemetery of St. Giles's, in which the last interment was made in 1853. It was determined, if possible, to retain and preserve with due respect grounds which had afforded for centuries a resting-place for some of the most illustrious personages of their age, although both grounds had attained a most deplorable condition, and the vestry having secured an Act of Parliament to do what was required, succeeded in converting them into very beautiful gardens, taking care at the same time to preserve all the sacred relics of antiquity existing. Lady Burdett-Coutts determined to show her sympathies with the project for utilising the grounds for the recreation of the public, especially the poor of the surrounding neighbourhood, and for the preservation of the names of those eminent persons whose remains had been buried therein, by the erection of a memorial fittingly to record the names of some of those celebrities whose memory should be handed down to posterity. These gardens were opened by Sir J. McGarel Hogg, M.P., chairman of the Metropolitan Board of Works, and on the same day, June 28, 1877, the Baroness laid the foundation stone of the memorial now completed.

Royal Horticultural Society.—At the meeting at South Kensington next Tuesday there will be an interesting group of double Primulas, a fine show of Potatoes, a collection of Abutilons in flower from Chiswick, and, it is hoped, some good stands of Chrysanthemums. The competition for Messrs. Sutton & Son's special prizes for vegetables promises to be very spirited.

Government Prize for Phylloxera.—The conditions of the prize of 300,000*fr.* offered by the French Government for a remedy for the Phylloxera will be forwarded to any applicant by the Ministry of Agriculture and Commerce. Englishmen of an inventive turn may easily, therefore, ascertain on what terms the reward is promised.

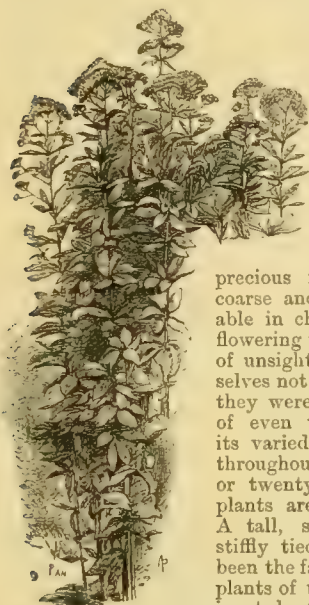
Waterproofing Boots.—A good composition for rendering boots proof against snow and wet, can be made of one part mutton tallow and two parts beeswax, melted together. Of course it will be more difficult to make boots thus treated take a good polish, but after a few times they will be as susceptible of a brilliant polish as ever. Half an ounce of Burgundy pitch, dissolved in half a pint of drying oil, and mixed with half an ounce of turpentine, will not only make leather resist wet and damp, but will also render it more durable, pliable, and softer. Warm the boots a little over the stove, and then apply the mixture with a soft brush or swab. Let them dry thoroughly, then paint them over again. Put them in a warm dry place for twenty-four hours, and you will have a pair of perfectly waterproof boots. Still another waterproof composition can be made by dissolving an ounce of powdered resin in a quarter of a pint of linseed oil, over the stove; put it in a tin basin, and place that in a pan of boiling water. When it is boiling hot, slice into it two ounces of mutton tallow, and apply while hot to the boots, letting it dry in thoroughly. The following receipt for making leather waterproof is from authoritative sources, viz., boiled oil, one pint beeswax and yellow resin, each two ounces; melt together. Apply warm before the fire.—*Country Gentleman.*

The money loss of champagne by the failure of the Vintage thirty million francs.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

THE FLOWER GARDEN.

PLANTS CHIEFLY FITTED FOR THE WILD GARDEN.



WHAT first suggested the idea of the wild garden, and even the name to me, was the desire to provide a home for a great number of exotic plants that are unfitted for garden culture in the old sense. Many of these plants have great beauty when in flower and perhaps at other seasons, but they are frequently so free and vigorous in growth that they over-run and destroy all their more delicate and precious neighbours. Many, too, are so coarse and ragged that they are objectionable in choice borders and beds, and after flowering they leave an ugly blank or a mass of unsightly stems. These plants are themselves not only not enjoyable in gardens, but they were the main cause of the abolition of even the mixed border itself, and all its varied beauties, in nearly every garden throughout the land during the past fifteen or twenty years; and yet many of these plants are very beautiful at certain stages. A tall, spreading Harebell, for example, stiffly tied up in a garden border, as has been the fashion up to the present day where plants of this kind have been grown at all, is at best of times an unsightly object;

but the same plant growing amongst the long Grass in a thin wood forms one of the loveliest objects conceivable. The Golden-rods and Michaelmas Daisies again, for example, used to over-run the old mixed border, and were with it abolished. But even the poorest of these seen together in a New England wood in autumn form a beautiful picture. So also there are numerous exotic plants of which the individual flowers may not be so striking as many popular ones, but which, grown in wide spreading groups and seen at some little distance off, afford beautiful aspects of vegetation, and quite new so far as gardens are concerned. When I first thought of the wild garden not one of these plants was in cultivation outside botanic gardens. It was even considered by the best friends of the hardy flower movement a mistake to recommend one of them, for they knew that it was the predominance of these weedy vigorous subjects that made the majority of persons give up hardy flowers entirely for the sake of the glare of bedding plants; therefore, the wild garden in the case of these particular plants opens up to us a new world of infinite and changeable beauty. In it every plant vigorous enough not to require the care of the cultivator or a choice place in the mixed border will find a home. Of such plants there are hundreds in every northern and mountainous country, which travellers may gather and afterwards grow in their own gardens, souvenirs of the pleasant places which they have visited. In this group the common *Acanthus* (*A. mollis*) comes in, though the rarer kinds are fit for a place in any border. The taller *Achilleas*; the beautiful and stately *Aconites*, dangerous in gardens on account of their poisonous roots; the seldom-seen *Actæas*; such *Alliums* as might be admired, and yet, like all their brethren, objectionable from their odour when near at hand; the huge and vigorous, but at certain seasons very handsome, *Althæas*; *Angelica*, with its fine foliage; the herbaceous kinds of *Aralia* from the American woods, also with fine foliage; the Wormwood family (*Artemisia*); the stronger kinds of American Cotton-weed (*Asclepias*); certain of the vigorous species of *Asparagus*; *Asters* and their allies in great variety; the larger and more vigorous species of *Astragalus*; certain of the larger species of *Betonica*, pretty, and with delicate flowers, but hardly fit for the mixed border; various free and vigorous exotic Grasses; large and showy *Bupthalmums*; the handsome creeping *Calystegias*, dangerous weeds in a garden; the most vigorous *Campanulas*; exotic *Thistles* (*Carduus*) and their allies;

the more remarkable kinds of *Carex*; numerous *Centaureas*, somewhat too coarse for the garden; various species of *Clematis* and *Convolvulus*. Others may consist of the coarser growing kinds of—

Coreopsis	Helenium	Mulgedium	Rumex
Crambe	Helianthus	Nepeta	Salvia
Digitalis	Heliopsis	Onopordon	Sanguisorba
Dioscora	Helleborus	Paeonia	Scolymus
Diplostephium	Hieracium	Panicum	Senecio
Dipsacus	Impatiens	Papaver	Serratula
Doronicum	Inula	Paucedanum	Sida
Echinacea	Jurinea	Phlomis	Silphium
Echinops	Kitaibelia	Physospermum	Smilax
Elsholtzia	Lactuca	Physostegia	Solidago
Elymus	Lithyrus	Phytolacca	Smilax
Epilobium	Lavatera	Polygonatum	Symphytum
Eryngium	Leuzea	Polygonum	Tanacetum
Eupatorium	Ligularia	Poterium	Thalictrum
Euphorbia	Ligusticum	Parmica	Thermopsis
Ferula	Lophanthus	Pulicaria	Typha
Funkia	Lupinus	Pyrithrum	Valeria
Galega	Lysimachia	Rhaphiticum	Veratrum
Gunnera	Lythrum	Rheum	Verbasca
Glycerium	Melissa	Rudbeckia	Veronica
Gypsophila	Monarda		

W. R.

WINTER BEDDING WITH EVERGREEN SHRUBS.

THE bare patches of earth which are frequently seen in gardens after the summer occupants are removed, is a somewhat objectionable feature, and one which can only be obviated by having recourse to what is generally termed spring bedding, that is, filling the beds with hardy herbaceous plants, which bloom sooner or later in spring, according to the season, or planting them with dwarf shrubs. The former method is objectionable, on account of the amount of work it entails preparatory to planting, and also owing to the dreary aspect which the plants present during a severe winter, when only the extreme hardy ones can survive, and likewise by this class of plants being invariably at their best when they have to be removed so as to allow of the summer bedding plants to be planted out. On the other hand, when shrubs are employed an immediate effect may be produced, which may be maintained throughout the winter, and will remain unimpaired by frosts. What may be done in this way by a judicious selection and tasteful arrangement has been admirably exemplified by Messrs. Charles Lee & Son, of Hammersmith, who made a much admired display at a recent meeting of the Royal Horticultural Society at South Kensington, and for which they were deservedly awarded a gold medal. This arrangement consisted of parallel beds on either side of the path in the entrance vestibule leading to the Council room, laid out in a series of circles and longitudinal lines. The varied shades of green interspersed with the pretty variegation of many of the plants used formed, on the whole, a harmonious picture, the subdued tones of which presented a striking contrast to the monotonous glare of colour generally seen in geometric designs. The various berry-bearing plants, too, interspersed here and there, such as *Aucubas*, *Spindle-trees*, *Yews*, &c., aided materially in producing an effective combination, and added considerable interest to the display. The majority of the plants employed consisted chiefly of *Conifers*, and the great variety existing in this class alone would produce an effect by no means to be despised. The feathery pyramids of *Retinospora ericoides* and *plumosa*, the many forms of *Lawson's Cypress*, including the silvery and golden-tinted kinds, the *Arbor-Vitæ*, *Junipers*, &c., are all characterised by beauty of form and pleasing tints. The intermixture of standard bushes, varying from 2 ft. to 5 ft., of *Aucubas*, *Ligustrums*, *Yews*, *Ivies*, *Laurustinuses*, &c., gave a diversified aspect to the arrangement, whilst they combined well with the pigmy plants. The edging of one of the beds was of the ordinary English Box, and that of the other consisted of the small-leaved *Spindle-tree* (*Euonymus microphyllus*), which forms a capital substitute. This system of winter bedding has much to recommend it, inasmuch as it gives very little trouble after the plants are once obtained, and they may be afterwards propagated in a simple manner at intervals, as occasion requires, and the facility with which they may be transplanted, and the various uses to which they may be put after they have attained too large a size for bedding purposes, such as forming shrubberies, &c., is no inconsiderable point in favour of the practice.

It is considered inexpedient to reproduce in our columns representations of the arrangement designed on this occasion by Messrs. Lee, as the system may be carried out in any ordinary style of beds, such as are usually seen for summer bedding plants, with equally excellent results; appended is a list of the plants employed in the arrangement at South Kensington, though it by no means exhausts the list of shrubs suitable for the purpose, as there are scores of other subjects which would be equally adapted for such work. On the other hand, such a numerous variety as that here enumerated is not to be considered indispensable, as it is not in the quantity or

great variety of subjects employed, but in their judicious selection and tasteful arrangement, that the appropriateness of this system of bedding consists.

<i>Aucuba japonica</i> , with ripe berries	<i>Taxus fastigiata aurea</i> (Standish)
<i>Euonymus microphyllus</i>	<i>Retinospora plumosa</i>
" <i>littifolius aureus marginatus</i>	" <i>ericoides</i>
" <i>" elegans</i>	<i>Cupressus Lawsoniana aurea variegata</i>
" <i>" elegantissimus</i>	" <i>argentea</i>
" <i>aureus maculatus</i>	" <i>sempervirens aurea</i>
" <i>radicans variegatus</i>	<i>Abies Engelmanni</i>
" <i>rotundifolius variegatus</i>	<i>Standard Aucuba japonica vera</i>
<i>Juniperus virginiana argentea</i>	" <i>Osmanthus ilicifolius argenteus</i>
" <i>japonica aurea variegata</i>	" <i>Ligustrum sinense tricolor</i>
<i>Buxus nana argentea</i>	" <i>Silver and other Ivies</i>
" <i>variegata</i>	

W. G.

THE KNOTWEEDS. (POLYGONUMS.)

Now that beauty of form is beginning to be appreciated, many plants of graceful proportions that were formerly discarded as worthless, either on account of their gross habit or inconspicuous flowers, are now being brought into notice; and it is more than probable that these will form a prominent feature in the gardens of the future. The vast genus *Polygonum*, which comprises 150 species of world-wide distribution, the majority of which are insignificant weeds, nevertheless includes several noble plants, which claim a consideration that has hitherto been denied them. From an economic point of view they are of little importance, the most useful member of the family being the Buckwheat (*P. Fagopyrum*), which is grown as a bread corn in Eastern Europe and Northern Asia, and as a food for pheasants in this country; some are used as fodder plants, and the tender shoots of others as esculents. They are of the easiest culture, thriving in any ordinary garden soil, but being greatly improved by cultivation. All those of a bushy habit should be so planted as to have a clear space all round, in order to give the foliage all the air and light possible, as overcrowding is frequently the cause of naked stems and a straggling habit, to remedy which tying-in has to be resorted to, a circumstance which detracts much from their natural appearance: their beauty consisting in the innumerable flower spikes rising above a gracefully developed mass of foliage continuous to the ground. Those of the *P. cuspidatum* type, which have few hardy representatives, invariably produce stems of sufficient strength to support their spreading crowns of foliage, though a tendency to droop at the points is not unusual; but this is by no means an objectionable feature. The annuals, unless grown as single specimens, and in sheltered situations, will require support, and the dwarf perennials, most of which are evergreen, need very little attention beyond an occasional trimming. The stems of all the tall hardy species, being of annual duration, die off in the autumn, and the succeeding ones, not appearing before April or May, is a circumstance which must be taken into consideration when planting for effect. Propagation is effected by means of cuttings, division, or seeds, which, if of the *P. orientale* group, should not be sown in the open ground until the middle of April. Several attempts have been made to popularise this class of plants, but through neglecting to keep them within bounds they have fallen into disrepute. To remedy this encroaching propensity, which is their chief drawback, their underground creeping rhizomes require to be cut back every spring. The selection described below includes most of the best sorts for garden purposes, and illustrates the various types of the genus.

P. alpinum.—A native of the Swiss Alps, and a very old inhabitant of our gardens. Its stems attain the height of 3 ft. to 4 ft., with ovate-lanceolate deep green leaves, with ciliated margins. Its flowers, which appear early and continue in bloom for several weeks, are arranged in snow-white panicles, and prove very serviceable where quantities of cut flowers are in request.

P. amplexicaule.—This usually reaches the height of 4 ft. to 5 ft. Its stems are rather slender, but well furnished with stem-clasping, cordate-lanceolate leaves, with deeply-veined surfaces and tapering points. Its slender flower-spikes, which rise a foot or more above the main body of the foliage, are of a rich pure crimson, an uncommon colour among herbaceous plants. A variety of this named oxyphyllum differs from the type in having white flowers with conspicuous red anthers. Both the species and the type are natives of the Himalayas, a region in which the genus is well represented.

P. cuspidatum, also known as *P. Sieboldi*, is a plant of sterling merit, now becoming quite common, belonging to a section with a semi-arborescent habit, and a peculiar curve of the stem, which brings nearly the whole of the foliage of each spray into the same plane. Its shoots are copious, speckled with purple; its broadly-ovate leaves, which are of a dark dull green, are frequently variegated with faint silvery blotches, and its creamy-white flowers are borne in great profusion. Its stately habit of growth, combined with the luxuriance of its foliage, are attractions of no ordinary character, which cannot fail to strike the most casual observer, and especially when in full bloom. A native of Japan, and is undoubtedly one of the finest herbaceous plants in cultivation. To do it justice it should be grown as an isolated specimen, either on the turf or in some prominent position of the wild garden, as represented in the annexed figure. The variety compactum is a distinct dwarf form with crowded foliage and flowers, and is more suitable for the herbaceous border or for pot culture.

P. sachalinense.—A native of the Island of Sachalin, and of a similar habit to the preceding, but of much larger proportions, often attaining the height of 10 ft. to 12 ft., with broadly-oblong leaves upwards of a foot in length, which are of a bright green. Its flowers are rather inconspicuous, being of a greenish-white, and disposed in slender drooping racemes. It luxuriates in a moist subsoil, near the margin of water, where it is very effective in company with grassy vegetation. It also makes a fine bold feature, either planted on the turf or in a good position where it can develop its noble proportions. No better plant could be employed for naturalisation in semi-wild places.

P. polystachyum.—This forms a thicket of stout, erect stems, which root strongly from the first few joints above the ground. Its leaves, which are somewhat crowded, are elliptic-acute in form, with a furrowed midrib, and a light coloured under-surface. It reaches the height of 5 ft. to 6 ft., including the flower-spikes, which are slender and greenish. The qualities that recommend it are its bold, erect habit, and dense, woolly foliage. Also an Himalayan species.

P. ribesoides.—This is a climbing plant, which would answer well for covering trellis work, pillars, and arbours. Its reddish, twining stems give off at intervals of 2 in. or 3 in. bright green sagittate leaves with short pink stalks. Its flowers, which are produced in the axils of the upper leaves towards autumn, are borne in racemose panicles of a creamy-white colour. No better substitute could be found for the *Boussingaultia* than this, and it has the advantage of blooming freely in the open air.

P. filiforme.—A very hairy plant, some 3 ft. to 5 ft. in height, with broadly-ovate, acute, short, downy leaves, with prominent ribs below. The flowers are small, and arranged in slender greenish spikes. The golden striped form of this plant has few equals among variegated herbaceous plants.

P. Brunonis.—Of the known evergreen species this is probably the best, leaving out *P. vaccinifolium*. Its leaves, which are spatulate, with a white under-surface, are mostly radical, and so numerous as to form a dense cushion, from which arise the numerous crimson spikes. It is an extremely pretty border plant, and a native of the Himalayas. It comes near to *P. Bistorta*, a British plant known as the Snake-root, well worth growing for its rich green foliage and red flower-spikes.

P. vaccinifolium.—Few plants surpass this for rockwork. It differs widely from all its congeners at present in cultivation, unless *P. crispum*, once a favourite flower, is still to be found in gardens, which resembles it in its twiggy habit. It is quite hardy, and thrives in almost any moist soil, and is seen to the best advantage where its shoots can ramble over stones or tree stumps. Under favourable conditions it grows rapidly, and produces its Whortleberry-like leaves and rosy flower-spikes in profusion. This is also a native of the Himalayas.

P. capitatum.—This is a charming little annual of a spreading habit, with oval greyish-green leaves, with a dark blotch in the centre of each, and numerous globose heads of pink flowers. When once established in light warm soils, it appears every year from self-sown seeds. Its neat habit, combined with the delicacy of its flowers, are qualities which never fail to attract admirers.

P. amphibium.—As its name implies, it is both a dry land

plant and a floating aquatic. In its terrestrial state it is not very attractive; its leaves are somewhat lanceolate, and nearly sessile; but, when it changes to an aquatic, it assumes a very different aspect; its leaves become long-stalked with oblong flat blades similar to those of the Cape Pond-weed (*Aponogeton*), but, instead of the forked inflorescence of that plant, its flowers are disposed in long cylindrical spikes, which rise several inches above the bright green floating leaves, and have a remarkable showy appearance. Of the twelve British species, this and *P. Bistorta* are the only ones of any horticultural value.

P. orientale.—A gigantic free-growing annual, growing to the height of 8 ft. to 10 ft. Its stems are very robust, and give off numerous lateral shoots, which are supplied with large, oblong, acute, rich green leaves, measuring 10 in. to 15 in. in length, of which those nearest the flowers are stem-clasping, and more inclined to be sagittate. The inflorescence is both terminal and axillary, and consists of slender spikes of crimson flowers, which make their appearance in July, and continue until the frosts. To obtain a good development of its foliage, it should be grown as a single specimen and without shade to induce it to bloom freely, when it makes one of the grandest of ornaments, either for the sub-tropical garden or for some conspicuous place among its congeners in the wild garden. There is a variety of this with pure white flowers, though both are rarely met with. It is a native of Northern India.

P. Fagopyrum.—This yields the Buckwheat, the triangular black husks of which are used so extensively for packing dry bulbs. Like the foregoing, it is a stately annual, but varying in height from 3 ft. to 7 ft. In habit the plant is more slender than the preceding, with fewer and more erect branches. Its leaves, which are very ornamental, are either cordate or sagittate, and, in some of the varieties, with red veins and foot-stalks. The flowers vary as much as from white to red on the same plant, though some varieties have pure white flowers. This species, which is grown largely by the natives of Northern India, appears to be quite as variable as our cultivated grain plants. Well-grown specimens of any of the varieties are very effective with their panicles of variegated flowers and delicate green foliage.—C. M.



The Great Japan Knotweed (*Polygonum cuspidatum*).
(Showing the part of the plant in flower.)

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Cyclamen neapolitanum.—The fine weather which we have lately been experiencing in addition to bringing out a bright display of ordinary summer flowers, has greatly favoured the development of the hardy flowers that usually cheer the dreary month of November, and among these few are more welcome than the hardy *Cyclamen neapolitanum* that is now flowering freely in open borders. We have some large bulbs of it, probably many years old, planted under the partial shade of Yuccas, hardy Palms, &c., in a well sheltered border, and their beautiful tufts of mottled foliage and profusion of pretty flowers give the garden more of the aspect of spring than that of the near approach of the winter.—J. GROOM, *Linton*.

Cistuses or Rock Roses.—Mr. R. Potter points out (p. 431) the difference between *Cistus ladaniferus* and *C. cyrius*. I am well aware of this, and of the superior beauty of the first-named species. I should therefore be greatly obliged to Mr. Potter or any other of your correspondents if they would inform me where I could procure the true plant. I have made many unsuccessful attempts to get it, and I fear that it is not now common in the trade. On more than one occasion I have had *C. cyrius* sent to me for the true *C. ladaniferus*, and I believe that many cultivators are not aware of the difference.—J. D. LLEWELYN, *Atherton Grange, Wimbladen*.

Marigolds.—To thousands of cultivators whose means are scanty and space limited, half-a-dozen plants producing a few flowers now without heat are worth ten times as many at midsummer, when the garden is ablaze with colour. Just one such plant is found in the new and very pretty pot Marigold Meteor, plants of which, raised from seed last July, I saw in pots the other day in a cold house. At this dull time their bright lemon and orange striped handsome flowers are a most grateful sight. This is a plant which must soon become a favourite.—D.

Hose-in-Hose Primroses.—The improvement going on of late in the single hardy Primrose has now resulted in a charming and perfect Hose-in-Hose variety of a clear yellow colour. Hose-in-Hose Polyanthus have been in existence for a long time, but in Primroses it is a novelty. These duplex forms are not merely curious as showing a process of natural development entirely due to careful selection on the part of the florist, but they also furnish a greater amount of colour than could be obtained in the case of single flowers. Any one who has seen a mass of some of the white or yellow duplex Polyanthus in bloom in spring will, I am sure, freely admit that in colouring effect they are far in advance of the single flowered kinds.—A. D.

Gypsophila paniculata.—To those who, like myself, have the misfortune to reside in northern latitudes, the description (p. 411) of such lovely spots as St. John's Vicarage, Ryde, is very interesting. In "Delta's" description of the varieties seen in the

garden in question is the following: "Gypsophila paniculata, a most delightful subject for cutting for nosegays, I have never been able to manage, and was told the secret was to grow it in peat." Will "Delta" kindly inform us what the above plant is? Surely it cannot be the old Gypsophila which he says he could not manage; if so, I am afraid he would find it difficult to manage an Oak tree, with which the enormous root stock of this truly hardy plant has some affinity, an old-established plant being a thing to test a spade in lifting it. Then there is the grand secret "to grow it in peat;" recommend a chalk-loving plant to be grown in peat! Why, the very name "Gypson," chalk, and "phileo," to love, points to the contrary. The very structure of the plant seems to point to its home among mountain

rocks, from its almost aerial gracefulness of bloom. I have heard it called the spirit plant. It possesses no qualities to make it a bouquet plant, but, like the Statice, it makes a capital plant in a dried state for grates, epergnes, and similar purposes. I am treating of Gypsophila paniculata; perhaps "Delta" will kindly enlighten us on the matter.—THOS. WILLIAMS, *Ormskirk*.

Thrips.—Nelson ascribed his victories to "always being a quarter of an hour before his time;" and this habit of forestalling enemies is a very desirable one for cultivators to follow, especially when dealing with those troublesome insects called thrips. One may neglect scale and bug for a few days with no other immediate result than an increase in their numbers; but to let thrips get the upper hand means destruction to the foliage, and a lowering of the vitality of the plant. These little matters require to be looked after now, when fires are necessary in plant-houses. Tobacco fumigation is the best remedy, to be followed up in bad cases on alternate evenings till three fumigations have been given.

Orchards.—In travelling some hundreds of miles through England by rail I observed many orchards—old orchards—but scarcely a single plantation of young fruit trees was seen. This is instructive and shows that people trust too much to gnarled and decrepid old standard trees. Many well-planted new plantations should be made if ever home-grown fruit is to be plentiful—good sorts on good soil; and a general system of planting on the part of landed proprietors,

of or cultivators sure of their tenure, is of all things to be recommended now that corn-growing and meat-producing are failing us.—B.

TREES, SHRUBS, AND WOODLANDS.

THE GROWTH OF COPPICING.

IN many parts of the country, upon soils which will not grow the ordinary timber trees of sufficient size to make their cultivation profitable, coppicing may be substituted with advantage, and the annual income to be derived from this will, under proper management, be little less than that obtained from the periodical falls of timber upon superior soils. But in order to ensure the maximum of profit from such, the species grown must be such as are suitable to the land, and also those for which there is a local demand. Thus in Kent, Sussex, Herefordshire, and Worcestershire, Hop-poles meet with a ready sale; in the mining districts, pit-props; in hardware districts and in the potteries, material for making crates; and in the basket-making localities, Willows of various kinds. The subject of local demand is an important one, as compared with their market value the materials obtained from ordinary coppices are too bulky to admit of long carriage either by road or rail.

Pure coppice of the best kinds, such as Ash, Spanish Chestnut, Red Willow, Red Birch, and Maple, are in the Hop-growing counties more remunerative than coppice with standards; but where the underwood is of an inferior kind, such as Oak, Beech, Hornbeam, Hazel, and the common kinds of Willow, a considerable admixture of standard trees may be reared with advantage. But under ordinary circumstances these should not occupy more than one-third of the wooded area, and their lower branches should, after every fall, be either pruned back close to the boles, or else considerably shortened to mitigate the effects of too much shade. Most of our common deciduous trees coppice freely—the Ash, Oak, Spanish Chestnut, Elm, Lime, Maple, Poplar, Willow, Hornbeam, Birch, Mountain Ash, Sycamore, Hazel, Alder, and, for a shorter period, the Beech. Some of these, such as the Lime, Willow, the Aspen Birch, and the white Alder, grow very freely from suckers. For pure coppicing the Spanish Chestnut is best adapted to sandy or gravelly land, Ash for a moist loamy soil, and Larch upon rocky slopes; upon a moist loamy or clay soil Chestnut stools very soon die out, and upon a deep good soil Larch grows too rapidly to be very serviceable.

By means of planting and subsequent layering, growths of coppicing may be carried over rocky surfaces where timber trees even of the smallest size are reared with difficulty, for as long as its connection with the parent stool is maintained, the layer will continue to thrive, even though its roots obtain little nourishment beyond what they find in the thinnest surface soil or among the crevices of the rocks.

The length of a rotation will depend to a great extent upon the kind of wood grown, and the purposes to which the produce is to be applied, as well as upon the climate, site, and quality of the soil. The shorter the rotation, the sooner the stool is exhausted. When Osiers receive an annual cutting, the stools seldom last more than 13 or 14 years; though those worked upon a two or three years rotation endure for nearly double that period. Standard trees cut down after the age of from 40 to 50 years, seldom leave a reproductive stool, though instances have been recorded in which they have shot up afresh even when more than a century old. But with good management and careful cutting, a Chestnut plantation may last for more than 150 years. From nine to thirteen years is the common length of a rotation, but basket-makers' Osiers are cut at the end of the first and second years; Hazel for crates and hampers and for the coopers' use, at the end of the third; Ash and Spanish Chestnut upon good soils, at the end of the ninth or tenth years; and Oak, Hornbeam, Birch, &c., upon inferior soils, at about thirteen years old.

As coppice shoots are produced either by the adventitious buds which spring from the edge of the cut surface of the stool, or from the dormant or lateral buds which proceed directly from the medullary processes in the wood, and below the former, the method of cutting has a considerable influence upon the future crop. When the bark is torn from the edge of the stool's surface, the adventitious buds are destroyed, and heavy blows from a blunt instrument will also destroy the dormant buds, and even break off the finer fibres of the small stools standing in loose soils. To avoid this, the poles growing upon the smaller stools should always be cut off with the bill-hook, and everything under 6 in. in diameter with a light axe. All tools used in coppice felling should be of the best kind, and also be kept to a keen edge. No cutting should be permitted during frosts, and all blows should be directed upwards as far as practicable. Except in very wet situations, where the stools are occasionally partially immersed, they are best cut off as close to the ground as possible, in which case the dormant buds send up shoots from near the surface

of the ground, or even below it, and these, in time, become well rooted in the soil, and at the next cutting considerably extend the area of the stool.

To produce a luxuriant crop of young shoots the best time of cutting is between the middle of February and the end of March. But in most districts the work goes on from early in November until the beginning of April. Where a large breadth has to be cleared by the same hands, the younger plantations should be cut first.

A. J. BURROWS.

THE FORESTS OF THE NORTH.

IN addition to the Fir and Pine, which, of course, form the bulk of Norwegian forest growth, there is the Birch (*Betula odorata*), which in West Finmark is found in considerable tracts, and occasionally in other parts of the country, amongst the clearings of the Pine and Fir woods. The limit of elevation, as far as its geographical distribution goes, is about 1,101 metres (1 metre = 1 1-10th yard) in Southern Norway, 600 to 700 metres in Trondhjem district, and from 300 to 400 in Finmark. It is a pretty and well-grown tree, is frequently met with growing to the height of 60 ft. to 70 ft., and with a diameter of 3 ft. or 4 ft. at the base. A good deal of Birch wood is used as fuel, but it is a useful wood for cabinet makers, and its outer bark is of value in many industrial occupations. The Birch tree adds much to the scenic effects of the forest, with its long drooping cluster of branches, and is one of the most characteristic ornaments to a Norwegian valley. Some of the Birch groups, indeed, have quite a celebrity throughout the country for their beauty, and not only their owners, but the whole of the population of the district regard them with pride, naming them according to their fancy. There is a magnificent specimen of Birch called the "Holsbirk" on the property of Hol, in Rennebu, in the prefecture of Southern Trondhjem. It is 68 ft. in height, and has a diameter of 5 ft. at 4 ft. above the ground. Any sacrilegious person who attempted to destroy or damage "Holsbirk" would have a bad time of it amongst the peasantry of the neighbourhood.

The other trees which help to make up a Norwegian forest will not need much description. The Alder (*Alnus incana*) is found at about the same limit of growth as the Birch, and is met with pretty frequently as far north as West Finmark, attaining a height of about 60 ft., with a diameter averaging 1 ft. The variety of Alder known as *Alnus glutinosa* is very much scarcer, and is principally found in the valleys by the side of the streams, where the ground is rather damp. It is never seen above the height of 250 to 300 metres. The Beech (*Fagus sylvatica*) never grows wild beyond 61° lat., but when planted and looked after, it is found as far north as 69°, at Stegen in Nordland, and also at Trondhjem (63° 26'), where it does very well. In the sixtieth degree of latitude it forms small forest groups at Tonsberg, Larvik, and Arendal, and further north at Bergen and Sæm. This is probably the most northerly wild Birch wood in the world. There are two varieties of Oaks that grow in Norway, those with sessile glands and the pedunculated Oaks, the latter in small forest groups on the coast between Arendal and Flekkefjord. It ascends as far north as 63° in a wild state, but when planted flourishes at 66°. The Hazel (*Corylus Avellana*) grows wild on the low grounds to the south of Trondhjemfjord, but north of that it is rare, though occasionally found as far as Stegen (68°), where its fruit ripens. The Elm (*Ulmus montana*) is met with up to 67°, but, as a rule, never at an elevation higher than 500 to 600 metres above the sea. It is an isolated tree, growing to 90 ft. or more; and the only example of an Elm wood is at Solvorn, near one of the inland arms of the Sognefjord.

The Willow (*Salix caprea*) has a much more extensive range, and is found even above the limits of the growth of the Fir, as far north as Hammerfest (70° 37'), though only in the condition of bushes. But at Alten in Finmark (70°) it attains the height of 26 ft., and 1 ft. 3 in. in diameter. The Poplar (*Populus tremula*) has an equally wide range, and in the southern parts of Norway is met with, though in rather a stunted growth, at the height of 900 metres above the sea. But while in the low country it is 60 ft. high, it is little more than half that at Alten (70°). The Ash (*Fraxinus excelsior*), when wild, is not found further north than Molde in Romsdaal (62° 44'), but as a cultivated tree it flourishes even as far as the polar circle. The Lime (*Tilia parvifolia*) has a somewhat higher range (62°) on the west coast to what it has on the eastern border, where it is one degree less. Cultivated, however, it reaches as far as Stegen (67° 56'). The Mountain Ash (*Sorbus Aucuparia*) is common throughout the whole of Norway, and in ordinary summers it ripens well. With its pretty bunches of red berries, which attract multitudes of birds, it gives great colour and warmth to the hill-sides in winter.

Amongst the smaller class of trees which flourish in Norway may be mentioned the Juniper (*Juniperus communis*), generally met with

as a shrub, but occasionally, as at Selbo, in South Trondhjem, attaining the dignity and proportions of a small tree 36 ft. high. It grows everywhere, even as far as the North Cape, exceeding the Birch in this respect; but it requires a dry and the poorest of soils. Of Osiers, there are nearly twenty varieties in Norway, as wild shrubs, growing at a considerable elevation on the mountains, and especially in a damp, boggy locality. The wild Apple (*Pyrus Malus*) is met with every here and there as far north as the island of Yterö in Trondhjemfjord (63° 49'), though never more than 500 metres above the sea. There are two varieties of wild Cherry tree (*Prunus Avium* and *P. Padus*), the former rather localised, and found principally in small woods at the head of the Sognefjord, while the latter is much more common and has a wider range, ripening as far north as Tanaels, in East Finmark (70° 20'). Besides these are the Sloe (*Prunus spinosa*), growing up to 60°; the Barberry (*Berberis vulgaris*), which extends 4° farther north; the wild Currants (*Ribes Grossularia* and *R. rubrum*), the latter flourishing under the same conditions and limit as the Fir; the wild Raspberry (*Rubus Ideus*), very common as far north as Finmark; and the Blackberry, the only wild fruit in Norway, which is looked upon as a property, and which in Tromsö and Finmark is a source of some considerable revenue. Although not coming under the denomination of timber, it is fair to mention the numerous varieties of Bilberry or Whortleberry, and of Cranberry (*Vaccinium*), which grow in great abundance, and form such an agreeable addition to our culinary resources.

Buiber.

Berberidopsis corallina.—Amongst all the interesting and handsome shrubs which we have obtained from Chili, few, if any, surpass this in real beauty. It is of scandent habit, has glabrous, evergreen, spiny leaves, and long-stalked, deep crimson blossoms, which last a long time in beauty, and which are, moreover, produced in succession over a long period. It succeeds well in good fibrous loam, with a slight admixture of peat; and here in Newry it has proved quite hardy in various positions, such as against a due south wall, on a western aspect, and also hanging over and creeping amongst stones on rockwork; in open situations, too, fully exposed all round, it succeeds about equally well. I am not aware how high it will grow ultimately and under very favourable conditions, but my opinion is that it will not much exceed 3 ft. in height, seeming to have rather a tendency to extend laterally than upwards. Therefore, its proper position on a wall would be one of those bare spaces which one often sees between two other wall shrubs that grow wide at the top and leave the base bare. It is one of those really good shrubs for which place should be made in every garden.—T. SMITH.

Trees in Streets.—The new street called Fitzjohn's Avenue, half a mile long, and between 50 ft. and 60 ft. broad, which connects Hampstead with the Swiss Cottage, is being planted on either side with Chestnut trees, alternately pink and white. The cost, estimated at £200, will be defrayed by the residents of this suburb, Sir Spenser Wilson having already contributed £100. Fellows Road is also being planted with Plane trees, and the altered portions of Well Walk with Limes.

Shelter and Shade.—Shelter in winter and shade in summer are important points for consideration. Evergreen trees and such deciduous ones as retain their foliage until a late period of the year—the Hornbeam, Beech, and some varieties of the Oak—afford

much greater shelter in winter and the early spring, when it is most required, than those which lose their leaves early in autumn, and these should be planted wherever shelter is desired. Shade is best afforded by trees which rise with naked stems to a considerable height, and then send out a profusion of branches, as the Oak, Beech, Chestnut, and Elm, which can be readily trained by a little pruning, and their spreading branches and umbrageous foliage are greatly superior for this purpose to the Ash, Sycamore, and Plane.—B.

Distribution of Trees.—Humboldt tells us that the trees which occupy the highest elevations are the Pine and the Birch. The highest altitude at which the Pine grows is 12,000 ft. to 15,000 ft. above the sea level in latitude 20°, and the limits of the growth of the Oak appear to be about 10,300 ft. In Mount Caucasus the trees found nearest the limits of perpetual snow in latitude 42½°, and also on the Pyrenees, are the common Birch (*Betula alba*) and the hooked Pine (*Pinus uncinata*), as well as the red Spruce Fir (*Pinus rubra*). On the Alps, in latitudes from 45° to 46°, the common Spruce appears limited to an elevation of about 5,900 ft. In Lapland the Birch is found at an altitude of 1,600 ft. in latitudes from 67° to 70°.—A. J. B.

Planting Trees in Masses of the Same Variety.—The late Lord Chief Commissioner Adam first adopted this method of planting forest trees on his estate at Blair Adam, and though this was afterwards changed to the mixed system of planting, he afterwards returned to the original method, more especially upon the hill-sides. The reasons he assigned for this were that for purposes of embellishment the larger masses of different colours, especially on the slopes of the hills, produced more effect in point of grandeur than an intermixture, the latter being better adapted to the woodlands near the residence and to the pleasure grounds. He also found from experience that, during the process of thinning, the forester frequently left trees of inferior value, because from their greater rapidity of growth they had become the most showy, whereas in masses of the same kind the most valuable trees were generally left to grow on.—A.

Mistletoe.—In Hereford and other Apple-growing counties considerable trouble and expense are annually incurred in ridding the pest of Mistletoe

from the trees. Some people turn curses into blessings, and so we find Mr. Smith, of Worcester, does, by inducing Mistletoe to establish itself on fine young Apple trees, which are then sold at prices varying from 7s. to one guinea each.—B.

Euonymus linifolius.—All *Euonymus*es are not remarkable for their scarlet fruit, although in most cases this fruit furnishes a distinguishing characteristic. To the former class belongs *Euonymus linifolius*. The excellence of this shrub lies almost entirely in the beauty of its leaves, which are small, narrow, and of a dark colour. Slower growing than most *Euonymus*es, it is best fitted for the front ranks of shrub groups. The narrow leaves have a wavy appearance, which increases the effect of the otherwise strongly marked qualities. I like to note the attractions of such shrubs as the *Euonymus linifolius*, for the special reason that they afford a striking instance of diversity of appearance in a species of shrubs generally considered little capable of variation in their deciduous forms.



Berberidopsis corallina.
(Sketched in Messrs. Veitch's Nursery, Coombe Wood.)

THE FRUIT GARDEN.

THE MATURATION OF FRUITS.

FREQUENT correspondence on this subject induces me to offer a few remarks concerning it. Judging from what is practised and written on the subject of ripening Melons, forced Strawberries, and Pine-apples, &c., it appears to be a very generally accepted idea among fruit growers that some kinds of fruits are improved in quality by being subjected to a kind of starvation process, induced by withholding moisture to an excessive degree just at the critical period when the fruit is perfecting its juices and attaining its highest degree of perfection. In conformity with this idea, it is quite a common thing for cultivators to allow forced Strawberries to droop for want of water at the root when the fruit is approaching maturity; to roast Pines in a temperature almost as high and as dry as an oven, when the fruit is about to colour; and to parch Melons to such an extent as actually to deprive them of their foliage before the fruit is ripe—aye, even to kill the plants themselves when they have only reached the age of fertility; for we know that the Melon is capable of bearing several crops in succession when properly managed—a thing quite out of the question in the case of plants that are “dried off” at the end of the first crop.

Not long since, a writer on Melons stated, as a guarantee of the good quality of this fruit, that by the time it was ripe the foliage was quite withered, thus securing only one crop of four or five fruits to a plant, after all the labour of making up forcing beds, &c. On the other hand, numbers of good Melon growers take four and five crops in succession from their plants, and fruit of the highest quality, by preserving the foliage in good health as long as possible. The writer, was often told, when a learner, that the dying off process improved the quality of the fruit; but the results never proved as much, in any case he can remember. Indeed, such practises are quite opposed to all physiological knowledge on the subject, and their utility is contradicted by experience. One cannot imagine what excuse can be set up for subjecting plants to a course of treatment that arrests their proper functions more or less, and saps the very foundations of life itself, if continued for but a brief period. Surely, such treatment cannot impart any desirable quality to the fruit! Acting on these convictions, I have invariably watered the plants up till the time the fruit was quite ripe, just as at other times—and that was sufficiently to maintain the foliage in good health, and prevent it suffering from drought, even in the slightest degree.

In the case of Vines and Peaches, &c., I suppose no one will deny that the parching system is wrong; why, then, is an exception made in the case of Melons, Strawberries, Pines, and such like? In the case of the latter it is a common practice to withhold water altogether from the plants when they are about beginning to colour, and some withhold it sooner, with the object of hastening maturity; but the practice is wrong. With winter-ripened fruit, when the pots are plunged in moist tan, it does not matter so much; but summer Pines grown in pots above hot-water pipes will not stand it without injury. I always watered these up till the day they were cut, just the same as at other times, and in cases when I have had a lot of Queens standing in pots in the fruit room for a long time, I have watered the roots occasionally, in order to preserve that degree of plumpness and finish that they had attained. Neither do I consider it a wise practice to cut Pines while yet half ripe, and hang them up in a dry room, to let them finish in that condition. The fruit will acquire a dull yellow colour, it is true, but both flavour and weight are greatly impaired thereby, nor does the fruit keep much longer in good condition than it does if cut ripe; and it is certain that when the plants are moved with the ripe fruit upon them to a cool house, they will keep as long as is often necessary. As to pot Strawberries, the fruit is always best—most solid-fleshed and best in flavour—when gathered from plants that have always had sufficient water to keep the leaves not only from drooping, but green and luxuriant to the end. The plants are much improved by being removed to any airy and dry structure when about finishing their crop; but water should not be withheld from the roots while any fruit remains to be gathered.

In the case of Melons, it is, however, well to consider how the plants are grown in determining the quantity of water to give them about the ripening period. Old cultivators, who had to grow their crops in manure frames, tell us that they used to cease watering the bed entirely after the fruit was set, and that the plants usually finished their fruit in fine condition. This any one can easily believe who knows how long a manure bed, perhaps 2 ft. or 3 ft. deep, will keep in a moist condition. In such circumstances the plants are not drawing their nourishment from the surface of the bed to any great extent, but deep down from the manure heap, which also keeps the soil bed above pretty uniformly moist. It is quite different, however, when bottom heat is derived from hot-water pipes, as is fre-

quently the case now; and it is this which makes Melon growing under the two systems so different, and necessitates such opposite treatment. Above hot pipes the bed is always parting with its moisture, and never receiving any, except from the watering pot; and experience shows often enough that, when water is withheld for a short time, the comparatively thin and narrow bed of loam gets as dry as dust, and, as a rule, more so at the bottom near the drainage, where the great bulk of the feeding roots have penetrated—a thing which often happens through timid watering at other times as well. Consequently, when a Melon plant is deprived of the usual supply of moisture at the ripening period, it may easily be guessed what is likely to happen. The foliage droops and withers, and at the same time the fruit changes colour and ripens prematurely, and is inferior in flavour, and only in a less degree than a fruit that has been cut from the plant altogether when about changing and ripened on the shelf. Such fruits are seldom eatable. None of these evils need happen, however, if water is furnished to the roots as required; and there is no doubt about the fact of several good crops having been taken in succession from plants so circumstanced. In short, Melons, Pines, and Strawberries, and similar fruits should be supplied with water up till the time they become fit for the dessert.

J. S. W.

ALLOTMENT ORCHARDS.

THAT the allotment system of gardening, so generally extended some forty-five years ago or thereabouts, greatly benefited the labouring classes no one, I suppose doubts. It is stated to have diminished crime among the peasantry, and generally to have improved and elevated their character. Allotment sections are very numerous in the great industrial districts throughout Yorkshire and Lancashire, and elsewhere; they are perhaps most numerous and best cultivated near towns and large factory colliery villages; for the agricultural labourer is by no means the best gardener, the artisan or the collier, who is confined to the shop or the pit during the week being, if anything his superior in that respect. As a rule, however, allotments are exceedingly well cultivated, and great emulation is displayed by the different occupiers. This, indeed, is one of the advantages of the allotment system. The gardens or plots all lying together, each witnesses daily the results of his neighbour's industry and skill, and is encouraged to follow his example; and it is quite gratifying to see the skill and industry displayed by these gardeners, and what they accomplish. Those who have large families, as a rule, go in for useful vegetables—such as Potatoes, Carrots, Onions, Beans, Peas, and greens, &c.—and the examples of culture which they produce are quite equal to what are usually seen in gardens of greater pretensions. Others cultivate flowers, and some make a hobby of Roses, in which they do a lucrative trade; while some of the most industrious and persevering own a greenhouse or a Cucumber pit, and make both pay as well as any market gardener does.

As good an example of this kind of gardening as could be seen anywhere, perhaps, is at Doncaster. The allotments are situated a short distance from the town, and belong mostly to the mechanics and artisans connected with the Great Northern Railway Locomotive Works there, where some thousands of hands are employed. The gardens are laid out on a fertile piece of land, and most of them are neatly hedged off or divided by a fence of some kind. A missing feature, however, in all such instances is the culture of fruit on a remunerative or even useful scale. Strawberries are often grown, and very successfully, and, to a certain extent, also Gooseberries and Currants; but Apples, Pears, and Plums are scarce, and when a few trees are planted they are often chance sorts, of no great value to the cultivator. The Victoria Plum, the best recognised kind, is sometimes grown with profit. It cannot be doubted for a moment that fruit culture would be very popular amongst allotment gardeners; but the system does not permit of its development on a thoroughly practical scale. The holdings are, as a rule, small, and in most cases, if cropped with Potatoes alone, they would not produce more than would supply a family of five or six. Fruit growing, is therefore, necessarily restricted. Garden stock generally consists of Potatoes, Cabbages, Onions, Celery, Lettuce, Beans, Peas, and Runners, and perhaps a few small fruit bushes. Big trees in such small patches are out of the question, as they soon shade the ground, interfere with the cropping arrangements, and are objected to by the occupiers themselves as boundary lines for obvious reasons.

I am acquainted with extensive allotments that contain hardly a single fruit tree. Yet land and horticultural societies and land-owners can, if they like, do as much for the culture of fruit among the poorer classes as has been done for cottage gardening generally by the allotment system, and this by simply applying the same system to the culture of fruit—in other words, by establishing “allotment orchards,” planted with really good and suitable varie-

ties of Apples and Pears, Plums, and Cherries, &c. There are no difficulties in the way of such a scheme that we are aware of, and it would be one way of giving a direct and general impetus to the culture of fruit in this country—a thing so much desired and written about. In these times of depression in agriculture the landlord could let his ground for such purposes at a figure considerably above farming prices, and still at what would be but a comparatively nominal figure to the tenant. An allotment fruit garden for one family need hardly be more extensive than a vegetable garden. A piece of ground that would hold a dozen or two dozen trees at the most would be sufficient in the majority of cases, and less would satisfy many. It would be desirable to prohibit the cropping of the ground with vegetables generally, as that would only tend to defeat the purpose in view: but there would be no objections to cropping between the larger trees with Strawberries and other small fruits, which, if properly managed, and as they could be at exceedingly little cost, would be as remunerative as anything else. It is doubtful, however, if it would be worth while to recommend any artificial system of training the trees in allotment gardening. Such attempts are more likely to result in failure than anything else, except in experienced hands; but ordinary orchard trees, we know, do thrive and bear well without any particular care.

What can be done in the culture of fruit trees by cottagers is often enough exemplified in isolated cases. I know cottagers possessing a few Apple or Pear trees of good sorts that annually make a considerable sum of money by disposing of the fruit to the nearest fruiterer, who gathers it and takes it away himself. Nor need our periodical losses of crops through bad seasons discourage anyone. Bad as the present season has been, the crops of all small fruits have been in most cases abundant, and we know that our scarcity of Apples and Pears, &c., in unfruitful years is as much due to individual cases, to the kinds planted as anything else. Market gardeners seem best to realise the necessity of planting sorts suitable to the locality, or which are at the season good for market purposes. In establishing an allotment fruit garden, it would be advisable for its promoters to exercise some jurisdiction in this respect, as cottagers are usually but ill-informed on such matters. In conclusion it may just be remarked that the situation selected for allotment gardens is too often a very unsuitable one, both as regards shelter and soil. An exposed field, open to the highway, for example, is far from suitable. On gentlemen's estates this matter is generally considered, and it is seldom a tolerable site could not be chosen in any instance; but in too many cases it is not the interest of the gardeners that is considered, but the convenience and pleasure of the owner of the land, who consents to let a portion of it that is of the least value to himself. I think the time has come when the allotment system of gardening among the working classes might receive a little more attention from those who profess to be interested in the subject of extending fruit and vegetable culture in this country. The allotment system, if properly directed, presents facilities for the extension of both in a way that no other plan yet suggested does.

C.

GRAPES WITH AND WITHOUT FIRE-HEAT.

THE idea of growing Grapes without the aid of fire-heat has an attraction for many small cultivators and others who are desirous of growing their fruit as cheaply as possible, and it would not be wise to discourage attempts in that direction; but it may be worth while to inquire how far anything like constant success in the way of crops of well-ripened fruits is likely to attend such a practise. It is desirable, for more reasons than one, that as little fire-heat be employed as possible in Vine culture; but were I about to grow Grapes, either for my own use or for the market in this country, and had to build Vineries for that purpose, I should provide means for heating them as well, and also employ the same during some part of the growing season. I do not believe in growing Grapes in cool houses; but, at the same time, would not seek to dissuade any one from utilising such structures as greenhouses or cool pits for Vines when opportunity offered. I am, however, almost inclined to think that Grape culture on open but heated walls where the climate was in any degree favourable would be preferable in such places. When Grape growing is a question of profit and loss, the item of hot-water pipes, in first outlay, and fuel afterwards, will not be felt nor grudged. I can safely say that with us the cost of coal, expended in heating the Vineries here, is but a fraction compared with the value of the crops, and I have not the least hesitation in saying that culture with the aid of fire-heat, when necessary, for summer and autumn crops, or such as may be supposed to be grown "without fire-heat," is by far the most remunerative, and that even where coals cost more than they do with us. And that being so, I think, disposes of the question as to which plan is the best. The most miserable failures in Grape growing I ever saw were in cool houses,

or houses that could not be heated sufficiently for the Vines. I remember a noted London nurseryman attempting to grow Grapes in a large show conservatory. The Vines were well cared for by qualified gardeners—trained and thinned in the usual way; but mildew appeared, and completely ruined the crop. The sight, when the writer saw the house in question, was enough to give an enthusiastic Grape-grower the nightmare. It is mildew, poor flavour, and the danger of the Grapes never attaining maturity that is most to be feared.

In ordinary fair seasons, Black Hamburgh Grapes may be ripened in cool houses, if regular attention be given to ventilation, so as to economise sun-heat, but not otherwise. As I have said, however, such attempts should not be discouraged, and cultivators would do well to select only hardy varieties for this purpose. That would ensure them success as much as anything. The Black Hamburgh, which appears to be the variety mostly grown, is not the best subject for cool treatment: it is too late, and particularly liable to mildew. The Royal Muscadine, or Chasselas de Fontainebleau of the French, is one of the best, and least liable to mildew of any Grape I know. The fruit hangs a long time after ripening, too, and beats not a few early summer Grapes in that respect. Some of the most deliciously-flavoured Grapes are likewise early, and may also be planted, such as the Frontignans and Chasselas Musqué. The treatment of Vines under the cool system must be different from that usually followed in heated Vineries, where moisture may be spilled without fear. The Vines should not be encouraged to start early in the season, otherwise late frosts may happen severe enough to penetrate an unheated house and nip the buds. Much will, however, depend on making the most of sun-heat, by never admitting too much air, and shutting up the house soon after mid-day on fine bright days. Three weeks or a month, or perhaps even more than that, may be gained by attention in these matters. Moisture should never be spilled in the house, except in fine dry weather. A muggy, close atmosphere has to be feared more than anything else—it is so difficult to dispel stagnant air and moisture in an unheated house; and this difficulty is sure to be experienced during spells of cold dull weather, such as we often have during the spring and early summer months. After the fruit is ripe, the same causes are against the preservation of the fruit, and the Vinery at that season should be kept as dry and airy as possible till all the fruit is used.—*Field*.

LATE BLACK HAMBURGH GRAPES.

I SUPPOSE it is not disputed that most people, if not all, who are in the habit of using Grapes as a dessert fruit, prefer good or even second-rate Black Hamburgh and Muscat Grapes to such varieties as Lady Downe's, Black Alicante, and Gros Colmar when they can have them. There are some, indeed, who will not have any of the three just named under any circumstances, and Gros Colmar least of all, notwithstanding its fine appearance. There can be no doubt about the fact, however, that the so-called "late Grapes" fill a great gap in our supply, and that their regular culture and preservation throughout the winter and spring months constitute an advanced step in Grape culture; but it may be asked, nevertheless, if the extension of the culture of such coarse varieties has not restricted the culture of better sorts within narrower limits than is desirable. I do not refer to the now almost abandoned practice of forcing such kinds as the Black Hamburgh, Muscadine, &c., in early spring, but to the increasing practice of growing the Lady Downe's and Alicante as a late autumn and late spring, and sometimes even as an early summer supply, when better sorts ought to be on the table, and produced at little more cost than late kept ones. It is not long since Black Hamburgs and Muscats used to be supplied in good condition till Christmas at least, and often later, much more commonly than at present. Indeed, I know many large gardens in which Lady Downe's Grapes are regularly sent to table by December, and not a few where they are cut early in November, when Black Hamburgs should be plentiful and good. I do not mean to say that we are less skilful in keeping the tenderer Grapes than we used to be, but I am afraid the ease with which late Grapes can be produced and preserved has made us more careless in that respect.

It is soon enough to cut late and inferior flavoured varieties by the new year, and the supply should not be prolonged beyond the end of April, in private gardens at least, and it has often appeared to me that horticultural societies would do wisely to discourage the production of these at such seasons of the year. There is no doubt that the Black Hamburgh can be easily preserved in fine condition till January, and even till February, at which season I have seen it hanging scarcely shrivelled, and still excellent in flavour. Only a few years ago we preserved our late Hamburgs plump and good regularly till the middle of January, and would do so still were it not that owing to an increased demand they are finished considerably earlier; but I am making arrangements for going back to the practice again if practicable.

In order to have Hamburgs late it is not desirable to start the Vines too soon; indeed, they should be kept back as late as possible, or till the buds break naturally, as used to be the practice when the construction of Vineries enabled us to take the Vines outside till the time came for starting them. But even in our modernly-constructed Vineries there need be no difficulty in this respect, for by keeping the ventilators open it is easy enough to prevent growth till May, or later, and Black Hamburgs started at that season and pushed on in a moderate temperature will ripen about the beginning of October, which is about as good a season of the year for ripening Grapes generally as we have, and the fruit will keep at least three months later. As to Muscats, they need to be started earlier, of course, and it is well known that they will keep even longer than Hamburgs. Both varieties would, perhaps, need a little more attention after they were ripe than the Lady Downe's variety to prevent damping, but when fairly well ripened and kept hanging in a cool dry atmosphere they keep wonderfully well. The Royal Muscadine, though a tender and thin-skinned Grape, is also a good keeper; a bunch left on an early-ripened Vine has hung in fine condition till quite lately, and when cut was still plump and firm, and of full colour and flavour. I suppose the French "bottle" this Grape in the same manner as we do late ones. J. S. W.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Heading Down Old Plum Trees.—Many an old Plum tree that now seems hide-bound and stunted, making but little wood, small foliage, and producing scarcely any fruit, and that small and ill-formed, would, if the head were sawn off, shoot again with such vigour as to astonish most people who had never seen the plan tried. I have seen trees that were come to a complete standstill, as if they had reached their full limit of life, restored to full vigour, and given another long period of fruitfulness, simply by cutting off the branches pretty close to the main stem. Of course, the latter was healthy, or this result could not have been as I have just stated. I noticed in an orchard last summer several Damson trees that had been headed down the year previous, and that had made a vigorous start; in some instances the main shoots were a yard long, and these again were clothed with laterals the whole length, and the whole of the young growth was loaded heavily with clusters of fruit, whilst old trees that had not been pruned were without fruit or had only a few thinly scattered about on them. Wall trees may be treated in the same manner with equally beneficial results. Indeed, all kinds of stone fruits, such as Peaches, Apricots, and Cherries, may, in certain cases and under some conditions, be headed down with advantage. Many a tree that is condemned to be destroyed might have its lease of life usefully renewed by heading back, always presuming that the trunk is in a sound condition.—E. HOBDAV.

Clearing Peach Trees of Leaves.—Most fruit growers will agree with Mr. Baines on this subject. I think it is of exceedingly little importance whether the leaves are swept off the tree or not when they are ready to fall, even should they be green. I daresay most cultivators have noticed that the Peach will carry its leaves long after the wood is perfectly ripe and the buds filled up, if the house be kept warm for the season, but lower the temperature for a day or two, and let the night temperature drop below 40°, and yellow leaves and a general downfall will be the result in a wonderfully short time. This applies to Peaches under glass only; it is very seldom the leaves are allowed to hang on the trees outside till the wood is ripe; the frost cuts them off before that time.—C.

Rapid Leaf-shedding.—The rapid manner in which fruit and other trees have cast off their leaves this autumn is very remarkable. Only a short time ago the foliage was as green as it usually is in August; then came one or two severe frosts, followed by a gale of wind, and the trees are now nearly bare. The question is worth consideration as to what influence this early—considering the season—and rapid defoliation may have upon our next year's crop of fruit. One of the chief lessons taught by the late sunless, dripping summer is keeping the summer's growth thin, and the roots near the surface, thus securing good substantial foliage and early maturity.—E. HOBDAV.

Peach Growing on the Extension System.—Allow me to reply to "J. S. W.'s" queries (p. 428). In the first place he asks me to inform him where I gained my experience and knowledge on this subject—a question so irrelevant that I can only satisfy him by saying that they were gained by years of practical observation in a school evidently superior to that in which the so-called extension system is advocated, and in practice, the result of which appears to be, according to "J. S. W.," one solitary Peach to a square foot. If your correspondent can convince any of your readers that such a

crop is equivalent in value, either commercially or otherwise, to ten good 7-oz. fruit in the same space, he will lead me likewise to exclaim, "wonderful!" It is unfair for "J. S. W." at this season of the year to doubt the number of fruits which the trees here have borne; however, I trust that I shall be able to show similar crops for years to come; such crops as cannot possibly be borne and matured, year after year, by the "wear and tear," which system he so persistently advocates. As to the figures 12 in. by 12 in. equal 144 in., they do not apply in my case, as the trees bear on both sides of the trellis. Further he tells me that I am completely in error by saying that Pears, Apples, *Cratægus pyracantha*, &c., do not come under the same head, and again, "What is a cordon?" Let me reply by asking, "What have I to do with cordons?" As regards pyramids let me say that I have in this adverse season gathered bushels of excellent Pears from trees planted eleven years ago, and which are now perfect specimens, the result of annual winter prunings; and I think it ought to be clear to everyone that it is impossible to form and furnish such trees by leaving season after season the terminal bud to break first and take the lead. As with fruit, so with buds and everything else—the more numerous the offspring the less able is the parent to support alike each separate individual. Summer pinching and pruning when the sap is in full flow is injurious, inasmuch as it causes the buds to become excited, which should by nature be at rest till the coming spring. As regards Mr. Groom's remarks, I have yet to learn that Peaches have so great an objection as he asserts to good manure and stimulants. For myself I use the best cow manure I can get, mixed with fresh fibry loam—a mixture into which I find the roots to work and revel. Gorging, however, sooner or later brings on destruction.—T. COWBURN, *Sunbury Park*. [We have seen examples of the fruit produced by Mr. Cowburn's pyramid Pears, and may remark that they were in every way excellent.]

Grafting on Different Stocks.—Mr. D. Simmons states, in the *American Rural Home*, that he grafted the Pear on the Crab last spring. The scions grew well till summer, when they died. Mr. Allis had met with success in grafting Apples on Crabs and Pears on Thorns. He had also grafted Pears on common Apples and "they did well." Mr. Smith knows of an instance in the eastern part of the State (N. Y.) where the Pear does well on the Mountain Ash.

Pitmaston Duchess Pears.—We notice some very fine Pitmaston Duchess grown by Mr. Wildsmith on a west wall. This is probably going to be the greatest of our English Pears; and, considering the bad season, the fruits are very fine, and more like those that would come from districts much to the south of Paris.

PRUNING GOOSEBERRY BUSHES.

As the season most favourable for this operation is now at hand, it may not be amiss to warn the inexperienced not to cut away too much of the young wood, as the finest fruit is produced on shoots of the preceding year's growth, and it is by no means a rarity to see Gooseberry bushes stubbed in as closely as Red Currants that bear their crop on spurs set thickly on the old shoots. I have generally, when contemplating the removal of any old Gooseberry bushes, left all the preceding year's young wood intact, and the quantity of fruit which they have produced has been enormous. As the demand for green Gooseberries has of late years greatly increased both for culinary purposes and for preserving, one may, by gradually thinning the crop, get a much greater return from unpruned bushes than from those in which the wood is thinned on the supposition of the fruit being left to attain its full growth. Moreover, generally speaking, green Gooseberries are now much more esteemed for preserving than ripe ones; therefore the crop can be thinned out when half grown and turned to profitable account. In pruning, the best plan is to cut away all cross pieces and such shoots as grow low enough for the fruit to be splashed or soiled by heavy rains; then remove any old, weakly shoots and shorten back the tips of all the best placed young ones, leaving a regularly balanced umbrella-shaped head. If birds are troublesome to the buds, stretch thread across the bushes several times, or syringe them with a mixture of lime and soot. A top-dressing of well rotted manure lightly forked into the soil early in the season will greatly benefit the trees; but if not done until spring, it will be best placed on the surface, as disturbing the soil when drying spring winds are prevalent would probably do more harm than good. If one takes the trouble to examine the fruit-buds of bush fruits just after the leaf drops, it will be found that they are daily swelling up, as if about to burst into leaf; in fact, there is no such thing as an absolutely dormant season with trees either evergreen or deciduous, although we are too apt to cling to the notion that the fall of the leaf denotes a total cessation of all activity until fresh life is imparted by returning spring. There is, however, little

doubt that the roots of such trees as the Gooseberry are more active now in laying up a store for next season's crop than they are when visible growth is being made above ground.

J. GROOM.

Linton, Kent.

THE INDOOR GARDEN.

PENTAPTERYGIIUM RUGOSUM.

A SINGULARLY beautiful shrub, native of temperate regions in the Himalaya Mountains, where it was first detected by Dr. Griffith, and subsequently by Drs. Hooker and Thomson; but to the late Mr. Thomas Lobb the merit of introducing it is due, when he was collecting for Messrs. Veitch & Sons, about twenty years ago. In its native country it is often epiphytal, forming a large tuberous root-stock or rhizome on the trunks of lofty trees. The coloration of the flowers is quite unique in this and two or three other members of the same family from the same country. In brilliancy the colours are, perhaps, not equal to many of the self-coloured Thibaudias, &c., which inhabit the Andes of South America, but the curious blending and figuring of the colours is, perhaps, without a parallel. The five-winged calyx is a deep red, almost claret, colour, and the



Pentapterygium (Vaccinium) rugosum; natural size.

ground colour of the strongly five-angled corolla is a kind of creamy yellow or nearly white, whilst the transverse bars vary from deep red to purple, and the short lobes are tipped with green. Dried specimens of this species were, if I remember rightly, distributed by Drs. Hooker and Thomson under the name of *Vaccinium rugosum*, by which it is still known in gardens. The accompanying engraving was made from a drawing of a portion of a plant which flowered in the Temperate house at Kew this year; *P. flavum* has stouter branches, broader glossy leaves, and yellow flowers; and the only other species of the genus, *P. serpens*, is a trailing epiphyte, having crowded leaves, similar to those of *Pernettya mucronata*, though rather larger, and deep red flowers. The flowers of several species of the neighbouring genus, *Agapates*, have the beautifully variegated coloration of *Pentapterygium rugosum*, notably *A. macrantha* and *A. pulcherrima*, both of which have been in cultivation and are figured in the "Botanical Magazine" as *Thibaudias*. *A. macrantha* is a superb plant. The flowers, which sometimes exceed 2 in. in length, are yellow at the base and tips of the corolla, and the ground is white, suffused with red, and streaked with crimson. *A. pulcherrima* is remarkable for the abundance of its deeper-coloured flowers, which are borne in clusters along the long leafless portion of the branches below the leafy tips.

W. B. HEMSLEY.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Standard Pelargoniums.—There are many varieties of the large family of Pelargoniums that are peculiarly adapted for the production of handsome standards, in which form they are more ornamental than when grown as bush or trained plants. For this purpose the Ivy-leaf, Unique, and several of the variegated kinds are admirably adapted. The Ivy-leaf kinds have a habit of growth that needs some kind of natural elevation to enable their beauties to be seen to the best advantage. Naturally pendent or trailing, they do well as basket plants where this form of growth can be fully displayed; and, for this particular reason, the elevation of these upon tall stems, in the form of standards, also enables the trailing habit of the plants to be conveniently seen. How much prettier to see their elegant leaves and flowers hanging in simple profusion, with unconstrained growth, than to have the plants stiffly trained and tied as pyramids, or fan-shaped as window plants! I have seen several varieties of the old Unique formed into handsome standard heads of some 15 in. to 18 in. in diameter, blooming most profusely, and looking most beautiful amongst masses of dwarfier plants. Some of the golden and silver variegated kinds not only graft or bud easily, but form handsome ornamental heads, especially those that are not of a too formal habit. Stocks for standards are easily raised by obtaining seeds from any of the common scarlet zonal kinds, and keeping the plants in small pots until they reach from 18 in. to 20 in. in height; then, the side growths being removed, the buds may be inserted in the stems, just as Roses are budded, but with a little growth attached instead of a mere bud. The spring is the best time for budding, and during the summer good-sized heads are formed. Of the Ivy-leaf kinds, some of the new and more woody ones are best suited for this purpose, as they more readily attach themselves to the parent stocks.—A. D.

Glazing Without Putty.—One is not a little surprised to see that so many horticultural builders still adhere to the old plan of glazing with putty outside, considering that it has been demonstrated beyond a doubt that glasshouses can be made permanently and perfectly water-tight without it, thereby saving both unnecessary labour, expense, and after trouble. Those houses in which the glass is simply bedded in putty, and that as thinly as possible, can be glazed in a very short time, and afterwards there is only the wood to paint, and no after peeling off of the putty from the astragals can happen. It is only necessary to cut the panes to fit closely, and press them well down, and tack them in at the bottom, and afterwards in painting to just bring the brush about an eighth of an inch on to the glass. This, together with the usual care in bedding the glass, renders the roof perfectly secure from drip. We have had pit lights glazed here on this plan for years, and they are perfectly sound and firm, though they are moved about every day. We should, however, recommend copper instead of iron nails for tacking.—J. S. W.

Potting Eucharis amazonica.—This does best when not too frequently shifted; a large quantity of it is grown here for flowering about this season, and I find that it always produces the fewest flowers the season in which the roots have been repotted. Our plants, mostly in 10-in. pots and thereabouts, were last repotted in the spring of 1877, and they have been annually top-dressed since, but not thickly, because the pots were such a mass of roots that little soil could be removed to make room for more. The first year (77) they flowered tolerably well, last year better, and this season best of all. The pots are well filled with bulbs, and I think I may say that every bulb has produced a strong spike of flowers. The plants are hardly ever rested, certainly not subjected to the cool treatment sometimes practised. They are grown in a stove heat all the year round, plunged in a sand bed during the growing season, and watered regularly with weak liquid manure, and in August they are lifted out of the bed to keep them a little drier till they show flower. They keep producing flowers now and then throughout the whole year, but this is the time when we have flowers in profusion.—J. S. W.

Neapolitan Violets.—In reply to "W. T." (p. 450) who asks for information respecting these beautiful Violets, allow me to tell him that we have been gathering good flowers from them all through October, therefore the Neapolitan cannot be termed a late variety. I have grown it for years, and have gathered blooms from it all through the winter and spring by following a few simple rules, as this sort is quite useless if planted out and left to itself like ordinary single flowered kinds. In April, when the plants in frames are becoming exhausted owing to being long in flower, the plants are taken up, and a sufficient quantity of strong rooted side runners is taken off and planted on well enriched soil in a border that is shaded from the midday sun. They are put in about 1 ft. apart each way, and kept well watered whenever periods of drought occur; a good washing with the garden engine also greatly invigorates them after a hot day in summer. All runners are cut off with a pair of Grape scissors quite close to the crown, the object being to concentrate all

the strength of the plant for flowering instead of producing runners. Frequent surface stirrings with a light Dutch hoe keep the ground clear and the surface loose and friable. We water with weak liquid manure from the cowyard, and have never yet seen Violets injured thereby, or from the presence of thoroughly rotted cow manure in the soil. About the latter end of September we lift the clumps by thrusting a steel fork down between each plant on all four sides, taking up the ball of earth and roots intact. These are set in Cucumber or Melon frames, quite close to the glass, using the partially decayed turfy mould in which the Cucumbers, &c., have been grown, for the Violets. I feel certain that if "W. T." follows the course just recorded he will acknowledge that the Neapolitan is as early a Violet and as good as any sort grown. This spring our stock of it for propagation was both limited and weakly, but by following the system of culture just named we have now a long range of pits full of plants full of buds and flower. This Violet is essentially an amateur's flower, as it requires no heated structure in which to grow it, but simply some ordinary Cucumber frame for its winter quarters. Ventilate freely on all favourable occasions, and cover well to exclude frost as soon as the latter becomes very severe.—J. GROOM, *Linton Park.*

LEAFLETS.

WHEN in Battersea Park the other day I saw one of those ugly displays of stiff bare beds, which are unhappily common everywhere now-a-days. How badly all this kind of thing accords with the changeable and splendid beauty of the autumnal garden! As any one may have seen during the past month, where there is the least attempt at picturesque or natural gardening, or, indeed, often where there are only a few chance combinations from things being wisely left alone, the beauty of the autumnal garden is quite equal, if not superior, to that of any other season of the year.

This dismal and frightful damping and dying off of all the summer flowers, and leaving behind them great ugly graves, seriously interferes or half blots out in the best parts of gardens and country seats much of the autumn garden beauty which ought to be seen. Even those who admire it would all do well to place the beds where their uniformity and rawness would not spoil the beauty of the garden landscape.

We have heard of spring gardens, summer gardens, and winter gardens, and, not satisfied with this, some people design brickdust and painted stone gardens, but I never heard of an autumnal garden, specially designed as such, which, however, could easily be made of a most delightful type. The Grasses and perennial plants that are beautiful late in the year, the bright-leaved shrubs, the red and golden trees, and deep green Yuccas and Acanthuses—all these, and many more, would go to make a lovely and picturesque garden.

Octavia Hill pleads in the *Times* for the opening of the garden in Lincoln's Inn Fields at certain hours, for the use and recreation of the inhabitants, and especially of the children, of the crowded neighbourhood around. Lincoln's Inn Fields is the finest open space in London surrounded by brick. Immediately around it are densely crowded neighbourhoods, and to open it would be an immense boon.

The trees are very fine, and there is scarcely a chance of even spending £5000 upon it in a wasteful and ridiculous manner. It is quite a lesson in city gardening to see the trees here growing so nobly because out of the reach of mutilation. A little wise clearing away of rubbish, and planting summer-leaving trees that will flourish, is all that is required beyond simple tasteful grouping.

In reference to the notice of the Ginkgo tree (p. 430) Mr. Marnock writes: "I may say that in August, 1847, I visited the Botanic Garden, Vienna, and turning to some memoranda made on the spot, I copy the following:—'Just within the entrance gate is a Salisburia, about 35 ft. in height, said to be the largest in Europe. The tree is divided at the base into two main branches, and is now for the first time bearing fruit. The fruit, of which there are two, are light green in colour; one about the size of a small marble, the other considerably larger. In shape both are slightly elongated.' This is no doubt the same tree which is now annually covered with numbers of yellow fruit."

The annual battle of the boilers is being fought over again in the pages of a contemporary. The chief contest now, as formerly, seems

to be between the tubular and the saddle. Strong assertions on one side are met by equally strong assertions on the other. It is, perhaps, well to bear in mind that anything that has been in existence more than a quarter of a century, and which still makes headway, cannot be altogether bad. Mr. Douglas is not far wrong when he recommends the saddle for small places, and the tubular for combined works.

The "British Medical Journal" prints some remarks about the ill-effects to be experienced in newly-painted houses. I have known illness to result from the smell of fresh paint, and that even in the case of healthy and young persons. So far as the inside of a house is concerned I would like to see all made without paint, as is sometimes done in the case of houses in which the doors and other woodwork are made of Oak as at Thoresby, the grain of which it is desired to show.

At the recent Calvert benefit performance at Manchester, a lady wore a fine white Indian shawl, fastened over the left shoulder with a gold-mounted tiger's claw, from which depended three lovely Lapageria flowers—two white and one pink—the effect was most charming.

A lady friend ornaments her very bewitching caps with carefully dried everlasting flowers of pink, white, and yellow Rho-danthes and Helichrysums. They are gathered when fully blown on a fine day, and are carefully dried in a warm room. They are of course far more delicate and pretty than any artificial flowers.

The mention of artificial flowers reminds me of an anecdote which I heard last week. A lady at a dinner party wore a breast knot of artificial Roses. In the interval before dinner, when the children were present in the drawing-room, a little girl was attracted by the flowers, and, after examining them, exclaimed "Why, your Roses don't smell sweet like papa's! They are only rag!"

A writer in a contemporary tells a curious tale of market practices, such as we hope are not common. "I had thought," he says, "nothing could be fairer than auction sales of fruit, &c., until my eyes were opened. For instance, a grower in Jersey sends 200 cases of Pears; it is made known that they will be sold at a certain hour. If they happen to be good, Mr. Auctioneer looks out for them in this way. He employs a man to bid and buy them, and as fast as he can talk and rap they are all knocked down to ditto, ditto, ditto, and so on to the end; they are then pushed off to the Borough Market, and there sold in a few hours afterwards by another auctioneer for as much as they will fetch. The sender in Jersey may be standing by and see his goods sold, for what the auctioneer cares—he can prove that they were sold for that price, and produce his books. I do not, therefore, think it requires any critic to explain that auction sales are a farce, and, I should say, worse than that. The reason why more growers do not attend and sell their own goods in the market is because of the scarcity of standing room around the market. I myself have tried it, and with great difficulty have managed to dispose of my goods. For several summers I have been sending to salesman Black Currants, and have stood in the market and realised 14s. per bushel, when my salesman's return has been 11s.—both on the same day. This very soon opened my eyes. What has long been wanted is a larger market and more room to let the producer sell his own goods.

I believe that this and other writers have, unwittingly no doubt, done great injustice to a number of very respectable and trustworthy salesmen in the market.

I hear that a meadow 8 or 9 acres in extent has been added to the area of the Royal Botanical Garden at Glasnevin. This space it is proposed shall be utilised as an arboretum, and such an one planted with a due appreciation of the wealth of tree and shrub beauty now to be commanded in all good gardens will be most interesting and enjoyable. Few men have the opportunity of planting an arboretum, and the art is far more difficult to perform well than landscape painting, since the planter has it in his power by his labour to inspire the painter's work. I hope Mr. Moore will please all lovers of tree beauty by his new labour of tree planting, since pleasure and not merely profit is to be the great result gained by his ability.

The innocent people who write to the *Times* about the iniquity of cutting down the rotten old trees in Kensington Gardens do not know that many of them are so very far gone that there is actual danger of their falling on their admirers. Nobody could suppose that such deformed and often ugly objects could be any ornament to a park that ought to be adorned with grand and healthy trees. The

public need not be afraid that fine trees will be taken away. What they ought to insist upon, if they wish to do any good in the matter, is that a fair proportion of fine young trees should be every year planted in a thoroughly good and artistic manner. Then fine old trees would come on in due time. But even these, like the wonderful old people whose deaths are regarded in the *Times* would "damp off" in the fulness of time, and the superintendent should be allowed to remove them in peace.

Some years ago many were pleased and surprised at the beauty and the novelty of the Japanese Chrysanthemum. Well, some of our florist flower manufacturers, instead of respecting and preserving the beauty of these, apply their mathematical and globose notions of beauty to the "improvement," or really the degradation of these singular flowers, and I saw a stand of them at Kensington the other day labelled Japanese, but with all the wild beauty of the original kinds "improved" out of them, and reduced to flat and ordinary-looking things; therefore, it is to be hoped that some one will preserve the true Japanese kinds for us, if he cannot improve them.

A chattering of loud but not excellent music, mixed with the shrieking of cockatoos, assailed my ears as I entered the Westminster Aquarium to see the Chrysanthemum show, while the eye was at the same moment gratified with the movements of an acrobat high above the head.

The most charming things there were those beautiful Japanese Chrysanthemums, which are, without doubt, the finest addition that has recently been made of any varieties of flowers to our gardens. One white kind was a beautiful bouquet in itself, and the delightful and fantastic shapes, the fine, and often singular, colours of the others were such as would charm those who are often disheartened by the formality of a Chrysanthemum show.

Mr. J. Douglas is of the same opinion as myself as regards the need of preserving these beautiful Chrysanthemums pure and in their original beauty, and as he has some influence with growers, perhaps we shall succeed in putting an end to the misguided attempts to improve them. If I were a rich man I would offer prizes for the encouragement of these flowers in all their distinctness of race.

Turning from these to the Pompones, tied down in the stiffest way and trained in globular heads, the change was a depressing one. Surely we want a "break" in our Chrysanthemum shows. Those miserable contortions of plants tied down with string into shapes compared to which a mop is picturesque, is not the last and highest expression of good culture in Chrysanthemum growing! If only for variety's sake, it may be worth while to have plants grown in a free and natural manner, and not tied down at all; and a plant grown so that it does not lose its leaves is a beautiful one.

Mr. Peter Veitch tells me that in China, as one might expect, a wholly different mode of cultivation is pursued. I once noticed a line of plants grown in a Celery trench; they preserved their leaves well, and, carefully transferred to pots and moved into the greenhouse at flowering time, they looked well both in flower and in foliage.

This mixing up of music hall, menagerie, public-house bar, and ceaseless jingle form a combination of sights and sounds in which it is exceedingly difficult to properly study the quiet beauty of flowers. It suggests how badly we are off in London for some central horticultural hall, in which interesting exhibitions of this kind could be held under conditions more agreeable to all concerned.

There are many little Chrysanthemum shows about town which many of us never see, and it is much to be desired that we really had a large representative Chrysanthemum show in the metropolis every year. With the fine varieties of flowers that there is now, if growers could be got to break away from the umbrella type and treat the plant from the point of view of those who wish their conservatories decorated, and also from that of the higher one of preserving the natural form and vigour of the plant, we should have a very beautiful exhibition.

A new and beautiful flowering tree is such a great novelty that one has peculiar pleasure in reading the following in the *Rural New Yorker*:—"Mr. Douglas writes us that he has travelled several thousand miles to convince himself of the value of *Catalpa speciosa*, and he believes it to be of incalculable value to this country as a forest tree, and a much finer ornamental tree than *C. bignonioides* or *syringefolia*, as it is much hardier—a more upright grower, and produces much more beautiful flowers."

The sooner our American friends send us this the better. One of the few trees that do thoroughly well in London is the common *Catalpa*. Even in crowded parts of the city handsome trees may be seen flowering profusely, and they retain their foliage a long time very late in the autumn, notwithstanding the dense smoke and dust of the streets.

I regretted to see a large stand of ornamental Grasses recently very stiffly and closely arranged, and quite spoiled by the admission of certain kinds dyed with crude colours, so as to make the whole look very artificial. What a beautiful exhibition these would make if properly arranged and classified; they would come very well in the Chrysanthemum season, and ought to be shown much better than is now the case, and Messrs. Hooper, who have a large collection, could surely show us something beautiful in this way.

In reference to this newly-awakened interest in winter bedding, which the Messrs. Lee's beautiful display at South Kensington recently has served to arouse, I may mention that I hear the winter bedding at Heckfield Place is this year much more attractive than usual. No doubt, the moist summer, inducing good growth on the part of the many dwarf shrubs and plants employed, has assisted to bring about this result, but something is also due to smaller materials being used in the production of mass effects. Still, the great feature of the winter display there is the fact that it is but a part of the summer arrangement; therefore, it is only necessary in the autumn to remove the more tender plants and fill up with hardy ornamental shrubs to at once make the design complete. In this way the additional cost is trifling.

The bright Geraniums, if one may still venture to use the older name, which are now adorning with such bright and lovely colours, such houses as Mr. Cannell's, at Swanley; the Cyclamens, of which Messrs. Sutton showed a very large batch a year old from seed the other day; the many double Primroses which came from Burghley to Kensington last Tuesday; Vilmorin's single variety, of which a batch came from Chiswick, and some new and cheerful-looking Salvias, shown by Mr. Cannell, are only a few of the gay flowers that help to mitigate the dullness of the winter for us. With such attractions, and no doubt many more to come, a well-built and well arranged greenhouse will, in the future, be more indispensable than ever.

Sir Joseph Hooker, in a recent number of the "Botanical Magazine," says: "It is indeed astonishing that the Asters, Helianthus, Rudbeckias, Silphiums, and numberless other fine North American herbaceous plants, all so easily grown, and so handsome, should be neglected in English gardens, and this in favour of carpets, hearth-rugs, and ribbons—forming patterns of violent colours which, though admired from being the fashion on the lawn and borders of our gardens and grounds, would not be tolerated on the floor of a drawing-room or boudoir." This is the just appreciation of the value of hardy plants which one might expect from a traveller who has seen so many of the most beautiful and distinct of hardy plants "at home" in all the quarters of the world.

I hear with regret that the botanical collections of the India museum are about to be transferred to the museum at Kew, so if the report be true the hope that has been generally entertained that all the national natural history collections would be centralised in the new and commodious building at South Kensington must now be abandoned. That Kew Garden is by no means an appropriate place for such museums is patent to every one who is in the habit of visiting them, especially during the present short days, *i.e.*, the three hours a day during which the public are admitted.

Lately I have been a frequent visitor to the museums at Kew, and in the majority of instances I have been the only person in the building with the exception of the attendants, thus showing what a paucity of visitors there is to these places, a circumstance which cannot be wondered at, for but few people would care to go such a distance from London for the short time during which the gardens and museums are open. This would not be the case if the museums were centralised in such a readily accessible locality as South Kensington.

What is there to prevent these museums being open by gas-light, the same as the South Kensington museum, and open early in the morning, and also be placed under the same regulations as that museum? It must be admitted that museums are in no way an indispensable adjunct to a garden of living plants, and it is to be regretted that these valuable collections which have been accumulated at Kew, and representing as they do such a vast outlay of public

money, should be placed in such obscurity, or otherwise enjoyed but by a privileged few.

The tank for the hardy aquatics at Kew has been raised to about 2 ft. above ground level. The walls would be better veiled with some low evergreen climbers to soften them a little. It is probable, however, that all that is necessary for science or effect could be obtained without raising the tank. Doing that of course adds to the ugly surfaces that one desires to see anywhere but in a garden. The best preparation for hardy aquatics which I have ever seen is in the Munich Garden, where the tanks are narrow, one plant occupying a few feet of each—having, in fact, a compartment to itself. I never saw hardy aquatic plants so well grown.

I notice that the walls of the plant houses at Kew are painted a shiny blood-red. No doubt in these æsthetic days artistic reasons could be given for any aberration of this sort, but I fancy a white stone colour, or an ordinary red brick, of which some of these house walls are made, will be found the best in the end.

I observe that Sir Joseph Hooker has taken occasion in the "Botanical Magazine" to deprecate the prevailing taste for carpet bedding. After this expression of opinion from the Kew Director we may in the future look for something better in the flower-beds at Kew than copies of the carpet bedding in the metropolitan parks and private gardens. Gardeners from all parts of the kingdom flock to Kew at some time or other to get lessons in horticulture, and it would be very good of the authorities there to point out by examples what constitutes good taste in floral bedding.

Some of the beds that border the broad walk might well be employed to exhibit the best effects in grouping shrubs, and alternate ones might be filled with good selections in families, or suitable groups, of hardy border plants. With such an arrangement there would be always something to see at Kew that would, perchance, not be done better elsewhere.

JUSTICIA.

Orchis hircina on the Ormes Head.—As the writer who first called attention to the statement that *Orchis hircina* was found on the Great Orme, I have read with much interest the numerous letters which have since appeared in THE GARDEN on the subject. I may say that when in Llandudno last month I saw and had a long conversation with Mr. Simpson, who says there is no doubt whatever about the matter, and he seemed to me to be well acquainted with Orchids, as, coming from my own county (Kent), the seat of British Orchids, he ought to be. However, I purchased plants which had bloomed during the past year, and which were no doubt taken from the Great Orme, so if I can flower them the question can be settled. As to Mr. Simpson raising a large stock from seed, I expect he will be very much disappointed, and certainly to have them ready for distribution next year, as the seed pods were taken from the plants I bought, and I gave him a hint as to sowing them, but it will take at least three years to make them blooming plants, even if he can raise them at all.—A. R.

Paris Daisies.—Under the name of *Chrysanthemum frutescens* var. *luteum* or *Etoile d'Or*, Mr. Howard, of Southgate, is cultivating a large stock of a free blooming *Marguerite*, which differs from the common white Paris Daisy in having broader lobed, bright green, not glaucous leaves, and clear primrose-coloured flowers from 2 in. to 3 in. in diameter. We ourselves regard the plants, of which there are two forms, as a distinct species rather than as a variety of the common and less beautiful *C. frutescens*. As a winter blooming plant for decorative purposes or for the supply of choice cut flowers, Mr. Howard's Primrose, or Golden Star Daisy, is likely to prove one of the most useful of modern introductions.

Double White and Purple Rockets.—Having noticed the remarks of several correspondents (pp. 404, 367, and 295) in reference to the scarcity of these, I was somewhat surprised, for, though the double white is not nearly, I believe, so plentiful as it was or should be—the same can be said of many other old favourites—it is very far from being lost; the double coloured varieties are perhaps even scarcer because less known. Mr. Williams' admiration will not be lessened when he blooms the newer kinds, as I have done; old plants are soon damaged in constitution by careless plucking of the flowers (tearing the stems) or by disturbing the roots, and, though with care plants may be kept healthy for years on well-drained borders, as I have often seen, it is far better to keep up the stock required by means of cuttings put in yearly, placing them in cold frames until spring, or, where such quarters cannot be provided, they may be planted out in the autumn, with a better chance of standing the winter than older plants would have, care and attention in both cases being equal.—J. Woot, *Kirkstall*.

THE GARDEN FLORA.

PLATE CCVII.—A GROUP OF POTENTILLAS.

Drawn by CONSTANCE PIERREPONT.

THE hybrid varieties of *Potentillas* constitute a class of showy and desirable hardy perennials, which apparently are but little known or cultivated, though the attractiveness of the excellent representations of a few of the varieties shown on the accompanying plate is in itself sufficient to commend them to the notice of every lover of hardy flowers. Like the *Pyrethrums* figured a short time ago in THE GARDEN, these hybrid *Potentillas* seem to have sprung up within the past few years, and, like them also, the double-flowered kinds are the most showy, and they possess the additional advantage of lasting a longer time in perfection than the single sorts, on the plant and also in a cut state. Though the genus *Potentilla* comprises such a vast number of species, there appears to be but few that have a tendency to produce double flowers, for, with the exception of our native *Creeping Cinquefoil* (*P. reptans*), of which there is a variety with pretty yellow double flowers, there are but two or three kinds indigenous to the Himalayas, from which have originated the present race of garden forms. These are *P. atro-sanguinea*, of which the deep crimson single flower at the top of the plate may be taken as a representative, and *P. insignis*, a species with large pure yellow flowers, shown at the extreme left hand corner. Both of these species are characterised by handsome broad deep-green leaves, the under-surfaces of which have a silvery appearance, which produces a fine contrast to the deep green upper surface and the showy flowers. All the varieties with large double flowers may be traced to these species, and it is interesting to observe the manner of the arrangement of the colours in the flowers. Some partake wholly of the colour peculiar to the original, as may be seen in the large crimson flower in the centre of the plate, and also in the pure yellow one immediately above it. In others the colours of both kinds are apparently blended and disposed in a variety of markings. Some are streaked and flaked with either yellow or crimson, similar to a *Carnation* or *Picotée* flower, and others have the petals more or less broadly margined only, while others are beautifully spotted and marbled. There seems to be about three dozen distinct named varieties, and a great number of them have emanated from Continental sources, though they may be all obtained in any of the large hardy plant nurseries. These represent every type of shade, size, and colour that it is possible to obtain, though such a large number is not indispensable, as a good selection of the most distinct kinds would be found to embrace most of the qualities of the whole race.

The culture of these plants is, as is the case with most hardy flowers, a simple matter. In my garden they luxuriate in a light deep soil, which is not very rich, though they well repay somewhat liberal treatment in this respect. The more fully exposed position which they occupy is, the better it appears to suit them, and thus treated they soon form vigorous specimens, and produce flowers in great profusion for many weeks in succession—in fact, from the beginning of summer till the middle of autumn. By way of affording variety a few flowers of some of the original species have been introduced in the plate, which, though they are very beautiful, soon drop their petals, whereas, in the double-flowered they continue in perfection for a considerable time. The fine cerise-tinted single bloom at the extreme right hand corner at the top of the plate is a very desirable kind, as it is not only unique in point of colour amongst all the species and varieties, but it continues to flower till the end of autumn in profusion. These by no means exhaust the beauty to be found amongst the *Potentillas*, for there are a great number that are strikingly attractive, especially the Alpine class, such as the pretty little *P. ambigua* of the Himalayas, and there are many others in cultivation of equal beauty that are natives of Europe.

JOSEPH STEVENS.

Buffed.

[We are indebted to Mr. Stevens for the specimens from which our plate was prepared.]

Kniphofia carnosa.—This is a very unique plant, different in shape and habit from the other species. It is a native of Abyssinia, and was sent to Europe by Schimper. It forms several low, spreading leaf rosettes, from the midst of which rise several flower-stalks to the height of 1 ft., producing a completely cylindrical flower-spike about 3 in. long, and 1½ in. broad; but the comparative smallness of the flowers is compensated for by their glowing apricot colour, which is made still brighter by the bright yellow anthers, laden with pollen, protruding. The individual flowers open first on the top side, and, taking it all in all, it is a lovely and striking plant. It began flowering in September, and is still in bloom.—MAX LEITCHLIN, *Baden-Baden*.



GARDENING FOR THE WEEK.

Conservatory.

Chrysanthemums in most places are more than usually late this year, and the later kinds will in many cases only now be coming into bloom. Everything should be done to keep the foliage fresh and healthy; air ought to be given when the weather is at all favourable, for if there is any mildew, anything approaching a stagnant atmosphere will cause it to spread. Where Roman Hyacinths are grown in considerable quantities, these will be very useful in assisting to keep up the display of flowers in positions that are unsuitable for large plants, and successional stock of them will be found much more satisfactory for bringing on into bloom than any attempt to force the larger kinds until later in the season.

Greenhouse.

Brugmansias.—These plants are only suitable for roomy houses, and for such there are few more commanding objects when in flower. A mistake which often occurs is letting them get too large both in the head and at the root, for which there is no necessity whatever. They look best as standards on straight clean stems from 4 ft. to 5 ft. high. In order to keep them within bounds as to size, nothing more is necessary than to cut the heads close in after blooming, and instead of increasing the root-room, as is frequently done by means of very large pots or tubs, remove a considerable portion of the soil once a year, and replace it with fresh material. If the plants are cut in now they will occupy very little room through the winter, as they can then be set in any house or pit out of the reach of frost, just keeping the soil in a slightly moist condition.

Myrtles.—Time was when large bushes of Myrtles might be seen in almost every greenhouse, for although they will live out-of-doors in some parts of the kingdom, their leaves are not so bright looking as when they are grown under glass, particularly in the winter season, when they are of most use. Not only are their flowers pretty, and the plants, when well managed, always fresh and green in appearance, but for mixing with arrangements of cut flowers they are most serviceable; a moderate number of their green sprays may with advantage be used even in the choicest bouquets, as, besides the perfume of their leaves being agreeable, employed round the outside there is no better material for giving support to the whole. Cuttings made from the young shoots now and inserted thickly in pots filled with a mixture of sand and peat, with a little sand on the surface, well moistened, and covered with propagating glasses, and kept in a greenhouse temperature during the winter, will by that time be callused over, and if then put in a little heat will root freely. If through the spring they are kept where a little warmth can be given them they will get a start such as will enable them to make good, small, bushy plants before the autumn. Old specimens that have become at all naked and bare, may be freely cut back any time, and if affected with scale or other insects they should be frequently dipped in or syringed with insecticide before they break. If placed in a greenhouse and kept somewhat warmer than ordinary, they will start into growth in good time, and though it may not be the practice with many to reduce the heads of anything of this character until nearer the time when they would naturally begin to grow, yet I have found by thus treating them in the winter, where means exist of keeping them slightly warmer than they would otherwise need to be, that they not only get a start that enables them to make much more growth through the summer, but that the weakening influence of bleeding, that generally results when they are cut back a little time before the spring growth commences, is avoided. It also affords an opportunity for a thorough cleansing of the plants when they are at all affected with insects.

Cinerarias and Herbaceous Calceolarias.—Cinerarias intended for the latest spring-flowering, if not already placed in their blooming pots, should be so before the roots get too much matted, as, when once they get into that condition, there is less chance of the additional root-room which they receive when put in their flowering pots having its full effect in inducing strength and vigour. They will bear the soil being made very rich by the addition to good ordinary turfy loam of some well rotted manure and leaf-mould, and they should be potted firmly; I should also in all cases recommend with soft-textured plants of this description that are intended to bloom when the spring is somewhat advanced and the weather is usually dry and sunny, necessitating the application of a good deal of water, that the pots be not filled too full of soil, leaving a little more space than usual for watering. Herbaceous Calceolarias should on no account be allowed to remain in the little pots which they have so far occupied until their roots get at all matted; they will bear larger shifts than most plants; for the ordinary purposes of decoration they will, in the majority of cases, be found most useful flowered

in from 6-in. to 8-in. pots; but any one wishing to have them as strong and vigorous as possible may, by keeping them shifted on as often as is permissible, grow them so as to attain a large size, and be proportionately better flowered than smaller plants. Like the Cinerarias they enjoy the soil being made very rich with rotten manure and leaf-mould. In order to grow the above plants with anything like success they must be kept perfectly clear from green fly, for if ever allowed to get much infected with that they are certain to injure the leaves in a way that so far weakens the plants as to prevent the possibility of their flowering well, and the foliage having such an objection to severe fumigations or strong applications of Tobacco water, as soon as any of the stock becomes the least affected means should at once be taken for the destruction of the insects, examining the plants at short intervals with a view to detect them directly they make their appearance. The first batch of Cinerarias that either are now or will shortly be pushing up their bloom-stems, as also those that are later, and whose roots have got fairly hold of the soil, should be regularly supplied with manure water. The best examples of these I have ever had were wholly watered with liquid stimulants from the time they got established after the last potting, not a drop of clean water being used. There is one thing in plant cultivation always apparent when the subjects are vigorous and strong, resulting from a continued course of attentive management from their first propagation upwards, they are generally much more seriously injured by any neglect than others whose growth is of a more stunted, less free description. This is particularly the case with plants whose leaves and stems are soft in texture like those of Cinerarias, which, where really well grown, and furnished with large, stout, healthy foliage, if only once allowed to get too dry at the roots are thereby so far affected as not only to lose much in appearance, but have their flowering capabilities proportionately diminished. I make these remarks with a view to impress upon those not experienced in their culture the greater need for carefully attending to the wants of strong early propagated plants that either at the present time, or shortly will be, throwing up their flower-stems, as it often happens at this season of the year, when plants need water so much seldomer, that they quite as frequently suffer from its non-application as in dry summer weather, when the whole require it possibly every day. Especially does this occur when such things, for want of room, have to be placed on shelves over the paths, and other positions not very easy of access. The same remarks apply to herbaceous Calceolarias, though these, except those propagated from cuttings, will in few cases yet have attained sufficient size to be so much liable to injury through the soil getting dry.

Shrubby Calceolarias.—Not only are these very effective when in flower, but they are much more easily managed than the herbaceous kinds. Their woody nature and the proportionately tougher character of their leaves make them less susceptible to attacks of insects, and when affected they are better able to bear fumigation, or whatever means are taken for the destruction of the animal parasites. The plants will last for years, and with fair treatment will keep getting larger, with sufficient root-room, forming bushes of considerable size, very suitable for conservatory decoration. For use in this way they are better adapted than the herbaceous kinds or many other soft-wooded subjects, as they will bear when in bloom placing in positions where there is less light, such as would make the softer growing kinds unsightly in a very short time. Plants that were cut back after flowering, part of the soil removed, and repotted, something in the way that large-flowered Pelargoniums are treated, but with less destruction of their roots, should now be moved to the pots wherein they are intended to bloom. The yellow flowered kinds, particularly the old sort, *aurea floribunda*, are especially adapted for using in this way, as if kept a little warm through the winter, say from 40° to 46° in the night, they will flower early, and with sufficient root-room and regular liquid feeding will keep producing flowers in succession for a great portion of the summer.

Lilies.—Those that flowered the latest should now receive whatever attention they require in repotting or renewal of the surface soil; where there are not more bulbs in the pots than will have sufficient room for another season, the latter will suffice. But with all it is well at the same time to see that the drainage is efficient, for, standing about as these plants usually are a good portion of the summer on the ground or other moist surfaces, worms are very apt to get into the pots, in which case the drainage is almost certain to get more or less clogged up. From this time until spring, when the young shoots have appeared above the surface, the soil should be kept in not more than a slightly moist condition, that is, just so as to permit of the root growth that with most kinds will after this time very shortly commence. There are few finer subjects for a large conservatory than *L. giganteum*, although the plant in favourable situations will live and thrive with a little protection through the winter; yet even on the coast, in the most southern parts of the king-

dom, I have never seen it near so fine as under pot culture. Plants of this species now in cold frames or pits should have plenty of air on all favourable occasions, and, if they are expected to bloom next year, should not be allowed to suffer for want of root room, though where there is not danger of their being thus affected, I should not advise their being placed in the flowering pots until later on.—T. BAINES.

Flower Garden.

Auriculas.—Many *Auricula* growers have been fidgetty about the mild weather which we have had, causing their plants to make growth when they should have been going to rest. Even small plants have been so forward as to throw up their trusses when they should have been forming strong plants to bloom in the spring. Small growers who have but one or two plants of a George Lightbody, John Waterston, or other choice sorts, see with dismay half of them showing trusses with short stems 1 in. long. To such it has been a relief to see the sharp frosts of last week and the present, a thermometer at Loxford having registered a minimum of 12° of frost. I do not think of placing any covering over the glass, frost cannot injure them at this season if the plants are kept dry. They will not want any further attention at present except to see that the lights are placed over the frames at night, and removed entirely during the day.

Carnations and Picotees.—The early setting in of severe frost is still further against the formation of roots in the case of newly potted plants. I have at last reluctantly found it necessary to put up a hotbed, using just sufficient manure to produce a gentle heat. I place some Cocoa-nut fibre refuse over the manure, and over that set the pots, plunging them just about one-third of their depth. There will be sufficient heat if it feels warm to the hand; violent heat and steam would be most disastrous in their results. The plants that are well rooted will be quite safe in cold frames; and, while frost lasts, they will require just the same attention as *Auriculas*. When thaw comes look carefully over all choice sorts, remove any dead leaves, and just stirring the surface soil in the pots if it is caked. Those who have planted out their beds will now see the value of a surface dressing of dry rotten manure. After the frost is over examine all the plants carefully, and gently press them into the ground with the fingers of both hands.

Dahlias.—I have thought that it was well to leave *Dahlias* in the ground until the frost was sufficiently severe to kill all the leaves and small stems, we therefore dug up the roots last Saturday after they had been exposed to 12° of frost on the previous night. Some of the largest growers dug up their roots after the frosts which occurred about three weeks previously. If the ground had been wet I also would have done so, but the border in which the plants were growing had actually become dust dry, and under such conditions the tubers must have been maturing. We had the convenience of a Vinery where the atmosphere was very dry, and on the floor of this structure the tubers were laid out to dry, placing them first with the stems downward, and then reversing them so that they would become quite dry all round. Afterwards they were stored away with the tubers just covered with Cocoa-nut fibre refuse; any shed or place from which frost is excluded answers well to store them in.

Gladioli.—Some have recommended leaving the bulbs of these in the ground during winter. I have never done this, and I have always found that when they were kept too long in the ground, i.e., after the end of October, the bulbs did not come out clean and healthy. Those who have not yet stored their bulbs should lose no time in doing so; cut the stem over close to the top of the corm or bulbs. They must be dried in the same way as *Dahlia* tubers before storing them; each sort may be put separately in a bag, and the whole can be stored away in a box until February, when it will be necessary to overhaul them to see if any are injured by decay, and those that are starting into growth must either be potted or planted in a warm sheltered border in order to obtain an early bloom.

Phloxes, and other herbaceous plants in pots, will be quite safe in cold frames while the weather is severe; if previous instructions have been followed the soil in the pots will not be very moist, and no water should be applied while the frosts lasts.

Tulips.—The ground was in such a thoroughly dry state, and the loam that we use to cover the bulbs also so dry and in good condition, that we planted the bulbs out last week. Our bed of show Tulips is nearly 60 ft. long, and when in flower it is a very beautiful sight. One does not wonder that it comes to be the rule for the old fanciers to plant out on the 9th of November. The root-stock swells about that week, and very soon the small rootlets will appear, whether the bulbs are planted or not; and when planted the roots strike out at once into fresh maiden loam. I am rather glad that we did get them out before the frosts set in.

Hardy Cypripediums.—Some remarks were made about the repotting of these a fortnight ago. It was recommended that they

should be potted in a staple of loam and peat, and for the largest proportion of them, especially the free-growing sorts, this answers well; *C. guttatum* may be taken as an example of a slender-growing sort that would prefer turfy peat with a third part of leaf-mould. Get all of them potted at the earliest opportunity, and do not use large pots.—J. DOUGLAS.

Kitchen Garden.

The long evenings will now afford abundant leisure for devising plans for future cropping, and also for summing up the results of the past season's operations, such as noting the varieties of vegetables that have been most satisfactory, or, indeed, anything by which we are likely to profit in future. By thus mentally arranging our work in something like methodical style, we save ourselves a large amount of physical labour and embarrassment, to which haphazard cultivators must of necessity be subjected. If the hints given in former notes have been acted on, all root crops will now be securely stored, and when bad weather impedes labour in the open air such root stores can be overhauled. Potatoes will need frequent examination, for probably they will keep but indifferently through having been harvested under such unfavourable conditions. Onions are already growing out fast; they were housed so full of moisture that the only conditions under which they are likely to keep will be a cool, dry, and dark room, and all disposition to grow must be repressed by a bend at the neck. Examine Cauliflowers and Early Broccoli daily, for the purpose of either cutting or sheltering from frost all that are ready for use. Cauliflower plants under hand-lights will now be the better for having the lights put over them at night, for though they may not seem hurt for some time, a few degrees of frost cripples or stunts them, and this leads to "buttoning." Those plants that were pricked out at the foot of south walls will now require shelter in order to ensure their safety, and the same remark is applicable to Lettuces and Endive. Plants of these that are fully grown are best lifted with balls of earth and planted in orchard-houses, cold pits, or frames. Besides affording protection and arranging details as regards forcing Asparagus, Seakale, and Rhubarb, there is little else of a routine character that now demands attention, and therefore the present will be a good time to undertake extra work, such as making new walks, opening or putting in new drains, planting Box edgings, levelling, grubbing, trenching, and, indeed, any work for which time cannot be afforded during the busy season.—W. W.

Indoor Fruit.

Pines.—With the exception of fruiting plants in an advanced stage, all others should, for the next few weeks, be kept in a partial state of rest; none should now have a greater bottom-heat than 70° to 75°, and the maximum top-heat need not exceed 60°, unless the weather proves to be exceptionally mild, under which circumstances a proportionate rise may be allowed. Plants that are swelling off fruit must still have the most generous treatment, and, therefore, to do them full justice, a separate compartment is indispensable; these still require the maintenance of a bottom-heat at 80° and an atmospheric temperature at 70°, and, though water will not now be so often required as hitherto, they should never be allowed to get really dry, for, if ever they thus suffer, the result is either deformed fruit or else badly-swelled pips. Smooth Cayennes, being shy producers of suckers, the crowns of all fruit of this variety as used should be preserved, as they make equally good plants as the finest suckers, the only difference being that they are longer on hand. The old fruiting stools, with any suckers which they may have on them, should be permitted to retain their fruiting positions till the general overhaul, which will be required about the beginning of the new year, takes place.

Vines.—The present month is generally a most anxious one for those having a quantity of Grapes still hanging on the Vines, for, unless they have been well ripened, the probability is that cracking and damping off will be prevalent, and, though it may be impossible to entirely stop such occurrences, much may be done to check them by daily removing all bad berries, and by keeping the atmosphere dry and warm, and removing all surplus shoots that have hitherto been left as root producers. Good keeping can only be secured by thorough and early ripeness, and any who are troubled because their Grapes are keeping badly would do well to in future start their Vines earlier. Some are prevented from doing this under a belief that if ripe too early the Grapes would shrivel before they were required for use, but with late Grapes this is never the case; but in early houses with Grapes ripe in May or June it would be marvellous if they did not shrivel, considering both the varieties of Grapes that are grown for early use, and the weather at that season. Prune Vines in mid-season houses as soon as the Grapes are cut, and, where there are but few remaining, cut and bottle them, in order that the Vines may receive the treatment most conducive to rest, viz., plenty of ventilation.

Peaches and Nectarines.—The earliest house may now be kept closed up, but fire-heat should not be applied for a week or two, unless the temperature approaches the freezing point; and, till artificial warmth is afforded, the trees will not need to be syringed, but as soon as heat is turned on, then syringe the trees twice a day. The Peach will not bear hard forcing, therefore proceed slowly; great fluctuations in temperature are ever to be avoided in all fruit forcing, but especially with Peaches, which are liable to drop their buds before opening. If the borders are inside, see that they are thoroughly moistened through, and always use tepid water. All that outside borders will require will be sufficient covering to keep out frost. The trees in late houses may for the present continue fully exposed, but the lights should be put on when there are indications of a long-continued frost. New houses that are to be planted should have the borders prepared at once, in order that the trees may be got in this month. Inside borders are preferable, because they can be treated exactly as desired, and at any time as regards feeding and watering.—W. W.

Extracts from my Diary.—November 24 to 29.

FLOWERS.—Potting Fuchsias for winter blooming. Looking over bedding plants and picking off decayed leaves and blooms. Rearranging plant houses. Taking a few more Hyacinths from outside and putting them in heat. Potting crowns of Lily of the Valley for forcing. Fumigating house in which Azaleas and Carnations are for destruction of green fly. Getting a few more Spiræas in heat. Planting two Camellias on back wall of early Peach-house. Fumigating Cinerarias in order to kill green fly. Sponging Stephanotis on roof of stove. Plunging Eucharis amazonica in bottom-heat.

FRUIT.—Looking over Muscat Grapes, and cutting out decaying berries. Watering all Pines requiring it. Watering early forced Peach-house previous to top-dressing with some 2 in. of fresh loam. Planting standard Cherries and staking them securely; also painting their bases with tar to keep off vermin. Making up bed in deep pit for plunging first batch of Strawberries, to induce them to make root before starting. Digging round and root-pruning Cherry trees to retard rank growth. Mixing lime rubbish with chopped loam for adding to soil when planting Cherries. Nailing Peach trees in early house. Uprooting exhausted Melons in house. Emptying Peach-house of old trees and soil preparatory to planting afresh with young trees. Renewing linings to Pine pit. Looking over Apples and Pears in fruit-room.

VEGETABLES.—Digging ground for spring cropping. Sowing Golden Trophy, Little Gem, and Acme Tomato seeds from America. Turning manure for Mushroom beds, and covering up first spawned bed outside with mats and straw to exclude rain and frost. Preparing stage for French Beans in Melon-house. Potting Golden Gem, Trophy, and Acme Tomatoes out of seedling pots into 3-in. ones for planting in Pine stove for early spring use. Cutting all Autumn Giant Cauliflower ready for use. Looking over Lapstone Potatoes in heaps outside.—R. G., *Burghley*.

Iris foetidissima variegata.—I am glad that "An Old Gardener" has (p. 444) had the courage to bring this plant so prominently before the public. No plant is more beautiful or persistent in its variegation, which is far handsomer than that of many stove and greenhouse plants; indeed, it in every way equals that of the well known *Aspidistra lurida variegata*. I saw it lately offered for sale by some French florists in Liverpool, tied up with great care, and exhibited in the plate-glass window as if it were some Brazilian Orchid. The plant is perfectly hardy, and easily propagated; anyone having a dozen may soon have a hundred. Properly prepared it would be very striking as a winter bedding plant, after the ordinary summer bedding materials have been cleared away. A few beds of this, edged with some of the Mossy Saxifrages, would be very attractive from October till May, and even then few people, I think, would venture to disturb it. It is also useful for massing among shrubs in bare places, where little else would grow, bushy and shady places being its habitat in the south; I mean the type. It is very common in Devonshire, and is known as the Roast Beef plant, from a peculiar smell which the bruised leaves have.—THOS. WILLIAMS.

Hardiness of the Procumbent Fuchsia (*F. procumbens*).—The hardiness of this pretty trailing New Zealand Fuchsia has been well tested by Mr. Green at Pendell Court, Bletchingly. He has several plants of it which have withstood with impunity several winters unprotected, including the last severe one. The chief point is affording it a thoroughly drained position, and then it appears to be perfectly safe. The plants at Pendell Court are growing on a raised mound, and, therefore, are comparatively dry in winter.—W. G.

THE KITCHEN GARDEN.

ONIONS AND ONION CULTURE.

I FIND the Trebons Onion—a large globe-shaped variety that may be considered intermediate between the Tripoli and the White Globe—to be an excellent variety for culinary purposes. The Trebons is a soft and tender Onion, and therefore not a good keeper; but, like the Tripoli, it is not so strongly flavoured as some other varieties. It is on the whole an Onion of quick growth, that is to say, it turns in pretty early, and therefore does well for use after the autumn-sown Tripoli, and before the main crop keeping Onions are required. I think it was originally introduced by Messrs. Vilmorin, of Paris, and when a few years since a large trial of Onions was made at Chiswick, a first-class certificate was awarded to it.

I think that, as a rule, cultivators do not sow their Onions so early as they should do. The Oxfordshire growers, who give the Onion as much attention as some florists give their Auriculas, sow their seed in the end of January or early in February, as soon as the weather is favourable, and thus they ensure a good start. Onion seeds should be sown in dry weather, when the soil can be crumbled almost to powder, and rolled down firmly. Though the Onion is generally regarded as a shallow-rooting plant, it strikes its roots much deeper into the soil than some persons imagine, and those who grow it well dig the soil deeply. Some are found recommending a depth of 2 ft. and 3 ft., manuring heavily at the same time. It is best to trench the ground early in December, and, mixing in the manure at the same time, throw it up roughly to take the frost till sowing time. A good loam, not clayey and cold, but fairly stiff, is best adapted for the Onion, and the situation of the bed cannot well be too open. If the soil is light and somewhat sandy, some stiff clayey loam should be mingled with it, or it is likely to fail at a critical time when the Onions should be making their prime growth.

We do not, as a rule, transplant Onions in this country, except when the crop is likely to be a thin one. The Oxfordshire growers who grow for exhibition do not depend on transplanted bulbs; they sow thinly good seed, and thin out the plants in the rows to a good distance apart where necessary. It is said that in Portugal, where so many of the Onions are grown that are imported to this country, the cultivators sow thickly in beds in the month of November, and transplant in spring into very rich soil, and in this manner produce many of their finest bulbs.

The best sorts of Onions for a garden are the White Lisbon, sown in July for young Onions in spring; and the white and red Italian Tripoli, sown in August. The Tripoli can be sown in store beds, and then transplanted; or in drills and thinned out, as in the case of the spring-sown varieties. For spring sowing, use White Spanish, now having many *aliases*, the White Globe, and James' Keeping; sowing the Tripoli early for late summer use, but they succeed best on a warm, light, sandy soil. The late Mr. John Standish used to grow wonderful Tripoli Onions during the summer in his nursery at Ascot.

The great bulk of the White Spanish Onion seed is grown in Bedfordshire, and of James' Keeping Onion and White Globe large quantities also. The seeds of Tripoli Onions, the Trebons, Strasburg, Brown Spanish, Blood Red, and Silverskin, come from the Continent and America. If the quantity of White Spanish Onion, estimated by hundredweights, that one of our leading seed houses gets through in a season were set down, it would be regarded by many as incredible. It is only those who know something of their business transactions that can understand the immense bulks required for a season's trade.

R. D.

Eclipse Cauliflower.—Mr. Miller (p. 391) speaks of Veitch's Autumn Giant being very fine with him at Clumber this season. Another good autumn Cauliflower is Eclipse, a new variety, equal in every respect to Autumn Giant. The produce of seed of it sown here at the same time as that of Autumn Giant was fit for use a month before that variety; the heads, too, were very large and close. Both varieties have done remarkably well with us this season.—G. SUMMERS, *Sandbeck Park*.

Magnum Bonum Potato.—I am pleased to state that my prognostications regarding this Potato have not been verified. Part of the crop has been left out in the ground till the present time (Nov. 15), for the sake of experiment, and the disease has not progressed. As I before stated, it appeared early in October, during the mild weather which we had then, and diseased tubers could be found where the stems were most affected; but since that time it has not gone further; the crop must be reckoned a sound one, comparatively speaking. My opinion, however, still is that it owes its immunity from disease to its lateness, to a great extent. The disease began unmistakably, but was apparently arrested by the colder

weather and frosty nights which set in towards the end of October. I cannot say, however, that it is a good sort to eat at this season; but it may improve with keeping. The Champion has been nearly as good as Magnum Bonum, but the crop was less, and the much-lauded Grampian has turned out a complete mass of rottenness—the worst in the garden.—J. S. W.

Magnum Bonum and Champion Potatoes in Durham.—Champion is this year extensively grown by farmers in this district, and has proved itself to be as good as any other variety, which is all that can be said of it. Many ploughed them up and had them pitted under the impression that they were not diseased; but I could point out instances in which the plague had already put its stamp on the haulm, and, where this took place, sound tubers will be the exception when the pit is opened. Champion is selling very well in the markets, but I can discover nothing remarkable about its quality which is not beyond mediocrity. I have only seen one batch of Magnum Bonum, which was planted on a piece of land that had been a Strawberry quarter for probably twenty years. This was trenched in April, and the bottom of the trench was filled with vegetable refuse; the land was afterwards lightly forked over, and a good dressing of burnt refuse was worked into it, the Potatoes being planted at the same time. They were lifted in the first week of September, and were certainly a fair crop, but nothing extraordinary; while, as regards quality—and they were cooked in various ways—it was as bad as it could possibly be. As, however, they were not at all diseased when lifted, either in the haulm or tubers, they will, perhaps, keep, and may turn out better after a while.—TYNEDALE.

Growing Potatoes on Slopes.—The almost universal method of growing Potatoes is on the ridge system, comparatively few neglecting to earth up more or less. The ridge is of value as a part protection from disease, a sharp, well defined ridge throwing off the rainfall into the furrows, and it is just the reverse when it is so imperfectly formed that it leaves a basin around the stems of the plants. It has been recommended as a preventive of disease to allow sufficient room between the rows for the haulm all to be laid one way, and covered with earth, so that instead of the plants standing out of the top of the ridge they project from the side, the haulm in no way covering the ridge wherein are the young tubers. It may well be a matter of opinion whether the disease is stayed in this way, but all experience favours the plan, as it tends to check exuberant growth, and also the progress of the *Peronospora* down the stalks of the plant. The plan of planting on the slope is thus explained—The ground to be planted is marked out with a line into widths of 4 ft., and, instead of being thrown up to a ridge of even sides, is thrown up with a 3 ft. slope to the sun, and a short slope of 1 ft. on the other side. When the tubers are planted, a drill is drawn with a hoe down the centre of the 3-ft. slope, and, as the haulm grows, earth from the higher side is gently laid against it on that side only. A second and third earthing still on the one side is given, and thus there is presently a sharp ridge of earth quite 9 in. thick above the growing tubers. Thus plenty of air is given, and all portions of the haulm are kept from contact with the ridge of soil.—A. D.

The Best Potatoes.—Among the great variety of new Potatoes many are puzzled to select; but Mr. Peter McKinlay, the well-known and most successful Potato grower and raiser, told me the other day that he believed that Woodstock Kidney, taking it in all ways, is the best Potato in cultivation, and the one which he would take with him to a Potatoless island if he were allowed one kind only; but for light and chalky soils he considers the International Kidney almost as well worthy of praise.—V.

GARDEN LABELS.

My friend, Mr. Thos. Williams, does well to direct attention once more to this subject, than which there is none at the present time more worthy of attention. To have a large collection of plants without names is to possess a wilderness. In a good garden every plant should be correctly named, and, if practicable, it should be done legibly but unobtrusively, so that the passer-by may read it if so inclined. We have here over 1000 named Alpines and herbaceous plants, besides hosts of Auriculas, Polyanthus, and other plants, whose names are legion, and every offset of which has to be kept true to name; and so it is evident that permanent labels, easily written and cheaply made, are essentials. We have tried every sort we could hear of. At first we relied upon Maw's terra-cotta labels, but they were failures; the names wear off them, whether written with special pencils or upon paint, and last winter they broke off short by hundreds; so we have abandoned them for ever. The cheap-made pegs, sold in bundles at seed shops, rot off in a year. Prepared paper labels get flabby and dirty, although they do well

for greenhouse purposes, especially for Azaleas, &c.; and, in fact, every sort has failed in practice here but zinc.

Now the zinc label, written with the indelible ink, is almost perfect, and so we have adopted it finally. It is dear to buy in prepared bundles, and none of the shapes sold are good ones; but any iron-monger or tinman will cut up a sheet of zinc into the size required. We use No. 8 zinc gauge, cut into pegs $6\frac{1}{2}$ in. by 1 in. This is a good large size, affording room for large writing. We had a sheet of zinc cut up into this size last week, and were charged 4d. per lb. for the pegs produced; and this is just seven for 1d., which is cheap enough.

The ink we use is as follows, viz., verdigris, $\frac{1}{2}$ oz.; sal ammoniac, $\frac{1}{2}$ oz.; fine lampblack, $\frac{1}{2}$ oz.; good vinegar, $\frac{1}{2}$ pint. Mix thoroughly. A quill pen only should be used. A $\frac{1}{2}$ -pint bottle of it is supplied by our village chemist for 9d. Of course, Yeats' ink is quite suitable, but used in quantity it is too expensive.

In addition to the full name written legibly in ink, we add our catalogue number punched with a steel die. For this purpose we have a set of alphabet dies and of numerals. They cost about 15s. for both sets. It is easy with these to mark every peg permanently, without writing, by using either numerals for references to the catalogue, or by initial letters. For instance, the *Aquilegias* would have "A." for *Aquilegia*, and below it, say "G." for *glandulosa*, or "S." for *Skinneri*, and so forth, so that you could tell at once the sort. When both punched markings and written are used, the gardener, in taking off the offsets, marks them with the punched marks only on smaller zinc pegs for the store garden; and so the system works well throughout. All our *Auriculas*, &c., are numbered merely on small zinc pegs by punches, and we find that these are always legible and clear.

I think Mr. Williams' combination peg of wood and wire will be found too troublesome in practice. The label would fall off frequently, and in other ways wood and iron would destroy each other. For a person with abundant leisure the trouble would be of little moment, but I am satisfied that it would not suit me.

BROCKHURST.

— I dislike labels of any kind, especially among rockwork, and if I could trust to my memory I would dispense with them. As this is impossible, I hide them as much as I can under the foliage, or by a stone, thrusting them deeply into the soil and leaving only a couple of inches projecting. To overcome the difficulty caused by labels being lifted out of the ground by frost, and the consequent confusion, make the labels long, at least 9 in. Any one disposed to go to a little trouble to make a good label, which will last many years, may proceed as follows:—Procure pieces of good white deal about $\frac{1}{2}$ in. in breadth; cut them into length of 9 in. or 10 in.; point one end, and char that portion which is to be in the ground; paint the other end, and write the name on while the paint is wet. Lastly, when quite dry, cover the paint with a coat of good wood varnish. In winter days I used to look round to see what labels were required, write the names down on paper, and produce the finished article at leisure in the evenings. I have many such labels now, and indeed many of them have lasted longer than the plants. By adopting a contracted system of nomenclature, and writing from the head instead of from the point, a much less portion than usual may project above the ground—e.g., *Saxifraga pyramidalis* might be written Sax. pyr.—EDWIN JACKSON, *Llandegai*.

— Having used zinc labels for many years, I can speak with confidence as to their durability. The combination of wood and wire recommended by Mr. Williams (p. 445) does not prevent the decay of the wood, though it may delay it. Zinc tallies, on the other hand, are absolutely indestructible; the writing is never effaced, and frost does not throw them out of the ground. They should not be less than 9 in. in length, the width being according to taste. They can readily be made by any tinsmith. Those of a large size for the open ground, 9 in. \times $\frac{3}{4}$ in., cost me 3s. per 100, weight $6\frac{1}{2}$ lbs.; a smaller size for pots, $6\frac{1}{4}$ in. \times $\frac{5}{8}$ in., cost 2s. per 100. Ink, which should be got from a chemist, is composed of 14 grs. chloride of platinum in 1 oz. distilled water. This quantity will last for years. Either quill or steel pens may be used. Before writing, however, the surface of the zinc should be rubbed with emery paper, which may be done at the time of being made, to save trouble when about to be used. I have tried crockery-ware labels; they were continually getting broken, or the names becoming obliterated by the action of the weather. Wooden ones were only a source of worry, and constantly requiring to be renewed. With zinc, however, one's troubles are at an end.—P. NEILL FRASER, *Rockville, Murrayfield, Edinburgh*.

OUR readers will greatly oblige the Editor by sending any sketches of objects which would be interesting or instructive to engrave, particularly views of beautiful plants, trees, or good landscape gardening, or picturesque effects in planting or grouping.

AMONG SUMMER-LEAFING TREES IN SPRING.

GREATER beauty than that produced by a variety of summer-leaving trees in spring could hardly, perhaps, be desired, and such is that shown in our illustration—part of the garden of the Petit Trianon at Versailles. In early summer it is delightful to see the variety of blossom and bud from great wild Cherry trees covered with snowy blossoms to clouds of the delicate tassels of *Acer Negundo*; but among such trees there may in the gardening of the future be developed a beautiful variety of flower life, independent of the trees. Evergreens take possession of the ground almost wholly, and much vegetation under their leaves cannot be, but many of the summer-leaving trees allow the sun to comfort the surface of the earth under their branches for a long time during winter and spring-time, quite sufficient for many of the little hardy flowers of the northern world to bloom and ripen their leaves; therefore in such positions, on many a lawn and in many a park, a beautiful little wild garden might be made of such spring-flowering bulbs, and little plants as the

fresh for any length of time. The plan can be tried on a small scale by inverting a tumbler over a Rose-bud in a saucer of water.

THE LIBRARY.

THE ASCENT OF THE MATTERHORN.*

THIS book is very remarkable for the beauty of its engravings, and though it contains little that interests our readers so as to justify a lengthy notice of it in *THE GARDEN*, the following allusions to the plants that grow on the very highest part of the Alps may be interesting to cultivators of Alpine plants and flowers:

"Those which I collected were as follow:—*Myosotis alpestris*, Gm.; *Veronica alpina*, L.; *Linaria alpina*, M.; *Gentiana bavarica*, L.; *Thlaspi rotundifolium*, Gaud.; *Silene acaulis*, L. (?); *Potentilla*, sp.; *Saxifraga*, sp.; *Saxifraga muscoides*, Wulf. I am



Among Summer-leaving Trees in Spring

Canadian Blood-root and the Golden Aconite. Such spots need not, of course, be mown, as the open bare parts of the lawn must be. Springing up on the Grass, or Moss, or even on the bare ground, such plants would be more beautiful than any common border. Occasionally little plants could be grown in this way that would not thrive anywhere else perhaps. We remember seeing once the little two-leaved Lily-of-the-Valley, a plant seldom seen in gardens, doing beautifully under some Beech trees, and adorning ground that would be otherwise quite bare.

How to Keep Flowers Fresh.—Flowers may be preserved in a fresh state for a considerable time by keeping them in a moist atmosphere. This can be done in sitting-rooms as follows: Pour water into a flat porcelain or glass dish. Set a vase of flowers in the dish, and over it place a bell-glass with its rim in the water. The air which surrounds the flowers, being confined beneath the bell-glass, is kept continually moist with the water which rises in the form of vapour. This is the way in which the late Prof. Lindley used to keep blooms of rare plants which he wished to preserve

indebted for these names to Mr. William Carruthers, of the British Museum. These plants ranged from about 10,500 ft. to a little below 13,000 ft., and are the highest which I have seen anywhere in the Alps. Several times this number of species might be collected, I have no doubt, within these limits. I was not endeavouring to make a flora of the Matterhorn, but to obtain those plants which attained the greatest height. Very few Lichens are seen on the highest part of this mountain; their rarity is due, doubtless, to the constant disintegration of the rocks, and the consequent exposure of fresh surfaces. *Silene acaulis* was the highest plant found by De Saussure on his travels in the Alps. He mentions (§ 2018) that he found a tuft "near the place where I slept on my return (from the ascent of Mont Blanc), about 1750 toises (11,388 ft.) above the level of the sea."

"Mr. William Matthews and Mr. Charles Packe, who have botanised respectively for many years in the Alps and Pyrenees, have favoured me with the names of the highest plants that they have obtained upon their excursions. Their lists, although not extensive,

* "The Ascent of the Matterhorn." By Edward Whymper. London: John Murray.

are interesting as showing the extreme limits attained by some of the hardiest of Alpine plants. Those mentioned by Mr. Matthews are *Campanula cenisia* (on the Grivola, 12,047 ft.); *Saxifraga bryoides* and *Androsace glacialis* (on the summits of Mont Emilius, 11,677, and the Ruitor, 11,480); *Ranunculus glacialis*, *Armeria alpina*, and *Pyrethrum alpinum* (on Monte Viso, from 10,000 ft. to 10,500 ft.); *Thlaspi rotundifolium* and *Saxifraga biflora* (Monte Viso, about 9,500 ft.); and *Campanula rotundifolia* (?), *Artemisia spicata* (Wulf), *Aronicum Doronicum*, and *Petrocallis pyrenaica* (Col de Seylières, 9,247).

"Mr. Packe obtained, on or close to the summit of the Pic de Malahacen, Sierra Nevada, of Granada (11,600 ft. to 11,700 ft.), *Papaver alpinum* (var. *pyrenaicum*), *Artemisia nevadensis* (used for giving the flavour to the Manzanilla sherry), *Viola nevadensis*, *Galium pyrenaicum*, *Trisetum glaciale*, *Festuca Clementei*, *Saxifraga Grœnlandica* (var. *Mista*), *Erigeron alpinum* (var. *glaciale*), and *Arenaria tetraquetra*. On the Picacho de Veleta (11,440 ft.), and on the Alcazaba (11,350), the same plants were obtained, with the exception of the first named. At a height of 11,150 ft. on these mountains he also collected *Ptilotrichum purpureum*, *Lepidium stylatum*, and *Biscutella saxatilis*: and, at 10,000 ft., *Alyssum spicatum* and *Sideritis scordiodos*. Mr. Packe mentions the following plants as occurring at 9,000 ft. to 10,000 ft. in the Pyrenees:—*Cerastium latifolium*, *Draba Wahlenbergi*, *Hutchinsia alpina*, *Linaria alpina*, *Oxyria reniformis*, *Ranunculus glacialis*, *Saxifraga nervosa*, *S. oppositifolia*, *S. Grœnlandica*, *Statice Armeria*, *Veronica alpina*.

"Information on the botany of the Val Tournanche is contained in the little pamphlet by the late Canon G. Carrel, entitled "*La Vallée de Valtorrenche en 1867*," and a list of the plants which have hitherto been collected on the glacier-surrounded ridge (Furgen Grat) connecting the Matterhorn with the Col Théodule, will be found in Dollfus-Ausset's "*Matériaux pour l'étude des Glaciers*," vol. viii., part first, 1868. In the "*Jahrbuch*" for 1873 of the Swiss Alpine Club it is stated that on an ascent of the Finsteraarhorn (14,106 ft.) the following were collected within the last 1,000 ft.:—*Saxifraga bryoides*, *S. muscoides*, *Achillea atrata*, and *Ranunculus glacialis*."

The book is beautifully printed by Messrs. Clowes, and the matter is not without interest, but the style is occasionally undignified and jerky, and not always clear.

WATER FOR NOTHING.*

SUCH is the title of a most interesting little pamphlet on water supply, written by Mr. Shirley Hibberd. The author's object is to demonstrate to the householder that he may, by utilising the rain water that falls from the roof of his house (which is now wasted) be quite independent of the Water Companies. There being always a certain amount of dust and blacks on the tops of our houses, more especially in London, Mr. Hibberd suggests that the first supply of water from the roof should be either rejected or used only for rough purposes, but after "the first flush of the storm the water that follows will be comparatively pure, and will improve by subsidence." The greater part of the water having been obtained, the best of it should be stored in a cool place, and in complete darkness, but a current of air should be allowed to pass over the surface. The water should be kept in tanks, and those made of galvanised iron are recommended by the author as being the cheapest, most wholesome, and enduring of any. In a slate country slate tanks could be used, and would be found to be both wholesome and cheap, while in a timber country wood would no doubt have the preference. Sufficient tank room should be obtained so that the water caught in a wet season may be used at a time when water is scarce. The best water should be passed through a filter before being supplied to the table. In order to save the rain water a Percolator has been proved to be all that can be desired, and the author thus describes it:—"The Percolator is a kind of box with two chambers, as it is fitted into the stack pipe, on a swivel or pivot. A slight shower causes no action of the apparatus, and consequently the water that runs from the roof is lost, or goes into the waste storage. But a rain of some duration brings the apparatus into play. In the first instance, the water from the roof passes through one of the chambers as waste. After from ten to fifteen minutes the second chamber, which is larger than the first, becomes filled with water through the action of a perforation provided for the purpose, and its weight causes it to overbalance the smaller chamber, and the whole affair then moves on the swivel, and the outflow takes a new direction into a pipe which conveys the water to the proper storage for supply of the household. The apparatus requires no attention, for its action is purely mechanical, not a drop of water being able to reach the storage until the rain has continued from ten to fifteen

minutes. The result is water saved from a well-washed roof and a well-washed atmosphere; and a clean slate roof is as good a watershed as can be desired." Referring to the subject of sewage, Mr. Hibberd very properly states that "Its present unmanageable bulk is wholly due to the admixture with it of the rainfall, which ought to be caught and reserved for many uses, and the remainder guided into channels apart from the sewage." With regard to small houses the primary principle of separating the bad from the good rain-water may be fairly carried out by means of a couple of water-butts, care being taken to get rid of any sediment periodically. The very best roof materials for water-catching are slate and glass, and the author observes of the latter that it is probable it will soon come into use as a substitute for tiles and slates. It is important to convince mankind that rain-water is better than spring, well, or river-water, from the fact that it has not come in contact with the earth. The author concludes his valuable contribution to this now important question by the following remark:—"If the value of pure water for every day use does not appear a sufficient argument for the storage of rain-water, the need of water for the extinction of fire may be urged; for, as the case stands, there is never anywhere a sufficient body of water to render suitable engines and willing hands promptly effectual in extinguishing fires."

ROSES.

PEDIGREE SEEDLING ROSES.

MR. BENNETT, of Stapleford, Salisbury, having shown examples of his Pedigree Roses in fruit the other day, at South Kensington, renewed interest has been excited regarding them. The following is Mr. Bennett's account of the way in which they have been produced:—"In the year 1865 (he says) I began to make the Rose a special study, and noticing that little progress was being made in its improvement, it occurred to me that by judicious cross-breeding some advance was possible. I commenced in 1868 a series of experiments which space will not allow me to enumerate otherwise than to state that they were complete failures. After operating on thousands of blooms I obtained only a very few unripened seeds; these, it is true, gave some distinct flowers, but were of such weak constitutions that they were useless. I continued these experiments in the following season with no better success. In that year (1869), in July, I read with interest a lecture delivered at the Manchester Horticultural Congress on the "Improvement of Plants by Selection, Hybridising, and Cross-breeding, having Special Reference to the Hollyhock and the Rose." There appeared to me to be nothing remarkable in this address; but what surprised me was the remark that the lecturer supposed himself treading in the path of clever men who had preceded him. After detailing some of his experiments with the Hollyhock, he stated: "With the Rose the case was somewhat different. It had been experimented on by clever and industrious men in France for a number of years, and doubtless I was here traversing ground which some of them had exhausted long before." This remark at first somewhat discouraged me. I had fancied there was some unexplored land to be brought into cultivation, and although I knew well that such men as Victor Verdier and Vibert had produced some novelties by artificial means, still I thought that there might be a little ground left unbroken, as all the new Roses which we were receiving from France appeared only varieties of types that had been introduced for years before of either Teas or Hybrid Perpetuals.

Knowing that perseverance is often rewarded by success, I felt inclined to continue my experiments, but to make sure I was not walking in the footsteps of others, I decided to visit all the principal nurseries of the French raisers. In 1870 and the two following years I carefully inspected the Rose nurseries of Lyons, which may truly be said to be the home of the Rose, but I failed to detect any scientific means of raising Roses by an artificial process, and on learning from my much-esteemed friend, M. Jean Sisley, that he had in vain been trying to induce the Rose raisers at Lyons to resort to manual fecundation, I could see plainly that Rose raising in France was like cattle breeding in Mexico, or horse breeding in the New Forest (and I think this remark may be applied to most of the raisers in this country), simply leaving Nature to herself and selecting the best of her produce. From this reasoning I felt certain there was a wide scope for working out fresh ideas, and the greatest difficulty would be to produce good well-ripened seed. Previous experience had taught me that our common open-air method had proved a failure, and was in no way practicable, and that a fresh move must be made. I then tried an entirely new mode of culture, and found, as I had anticipated, that good seed could be produced. I must say that many difficulties were met with, but at last I succeeded in seeding from every Rose I tried, and did not fail in any variety I

* Effingham Wilson, Royal Exchange.

crossed, no matter how widely the sorts were separated. The Teas crossed freely with the Hybrid Perpetuals, and *vice versa*, and the Mosses crossed freely with each kind.

For my main experiments I took my favourite Teas, Alba rosea and President, as seed-bearing plants, and from these I have selected the varieties which I am now cultivating, except one, and it will be found that they possess greater perpetuity as regards blooming, greater depth of petal, and that they are altogether different in type from any Roses before seen. My object has been to produce yellow and white Hybrid Perpetuals, and crimson and high-coloured Teas, and I claim to have produced the first yellow Hybrid Perpetual, seeded from a Victor Verdier Rose, blended with Isabella Sprunt (this is not yet named); and I lay claim to the first real crimson Tea (Duke of Connaught), seeded from President, crossed with Louis Van Houtte. I can guarantee the parentage of each variety. My experiments have been conducted by myself with the greatest care, and, although it is just possible after I had fertilised a bloom that it might have been re-fertilised by insect means (though it is highly improbable), with regard to the seed-bearing parent there could not possibly be a mistake.

Self-interest compels me for the present to keep my *modus operandi* secret. I do not mean the artificial means of fertilisation, as this theory is well known; but I feel certain that no good Tea Rose seed has hitherto been produced in this country, or ever will be



Pedigree Roses, showing variation in fruit—the larger one Alba rosea; the smaller, Devonensis.

except by my process. To save repetition in the descriptions of the individual varieties I wish to state that as all are seeded from Tea Roses it will not be advisable to bud them on Manetti stocks. They will in all probability in this respect behave in the same way as the Rose Captain Christy, but they all grow luxuriantly on the Dog Rose and on their own roots. They are all real perpetuals (not in the same way as the common perpetuals, that give a quantity of blooms in the best part of the summer, and then only a few mediocre blooms now and then afterwards), furnishing a regular and constant succession of flowers till the frost sets in. Not one of them has as yet produced a shoot that has not flowered; they have never been attacked by mildew or red rust, and they have resisted 30° of frost last winter in a very open situation without the slightest injury. The colour of each variety is quite novel, unusually clear and bright; the blooms have great substance, and remain a long time without fading, and are grand exhibition flowers."

We have seen blooms of some of the best of these Roses at the Handsworth nurseries, and very beautiful they are, being bright and striking in colour, and deliciously scented.

Standard Roses with Leafy Stems.—Two years ago a man brought me some short Briers quite studded with side shoots, and in this respect differing considerably from the walking sticks which we generally obtain to plant for standards. A thought struck me which took this shape—Why trim away all that side growth to the injury of the Briers? But I shortened the side shoots, and in due time entered buds on the topmost shoot, and

"bided my time." These trees are healthy, vigorous, all that could be desired for their age, and in the past summer they presented a peculiar appearance. By cautious cutting and pinching I have kept the side shoots within bounds, so that none have grown far out; and now they make a kind of green fringe up the stems, and take away the harshness of outline which obtained for standard Roses the profane comparison with mops and brooms. I should probably not have written this note had I not seen Messrs. Lee's fine show of winter bedding plants at South Kensington a few weeks back. Then I noticed some beautiful standard Ivies treated precisely as I have treated my standard Roses, a few stem shoots being left to garnish the pillar that supports the head of the tree. Every day we seem to come nearer to Nature in our exercises within the realms of art.—*Gardeners' Magazine*.

ROSE STOCKS.

THE following question is now and then debated amongst Rosarians: Which Roses are preferable—those on their own roots, or those budded on the seedling Brier, on cuttings of the Manetti, multiflora, or other sorts, or those on standard Briers? I have long pleaded the cause of Roses on their own roots for amateur's collections, and depreciated standards, which I ironically called broomsticks. I continue to entertain the same opinion, but I must acknowledge that in this matter, as in others, there are, and must be, exceptions. Roses on their own roots are to be preferred, but I confess that there are certain varieties which, being naturally delicate, gain in strength by being grafted on stouter sorts; although, for my own part, I prefer to reject weak kinds, which check improvement. Grafted Roses possess the great inconvenience of emitting suckers from the stocks, because the latter are constantly disposed to free themselves from the graft, the Manetti being the worst of all in this respect.

The seedling Brier has the advantage of communicating its vigour to the variety grafted on it; therefore it is particularly suitable for the rapid propagation of new varieties, inasmuch as a single bud makes in one year a stout plant, while cuttings take a much longer time. Plants thus raised are also preferable for sending long distances, which those from cuttings raised in a hothouse are not, owing to their being more tender. Besides, the Brier accommodates itself to all sorts of soils, while Roses on their own roots are more particular. The wild Brier, too, being robust and very hardy, is also more suitable for pot Roses that have to be forced than plants on their own roots.

Although I despise standard Roses as they are usually planted in a border or on the side of a Grass plot, I must admit that they can be used with great advantage amongst shrubs, which hide the stocks (the broomsticks, as I call them), if care is taken to graft with free growing sorts, such as Maréchal Niel, Gloire de Dijon, Noisette Lamarque, Desprey, Aimée Vibert, and some Bourbons. In this case the Brier lives by the aid of the stout variety grafted on it, if not checked by inconsiderate pruning, and if its roots are strong enough to struggle with those of the other shrubs with which it is associated. But if for this purpose weak sorts like Teas are used, failure will be the result; therefore I repeat there is no rule without an exception, so in this case, as in other matters, we must be guided by experience.

Lyon.

JEAN SISLEY.

Standard or Half-standard Roses on Brier stocks have always a disposition to produce suckers, even when the greatest care is taken at the time of planting to cut the thick, fleshy roots away from which the sucker shoots proceed, and although these growths may be pulled up as often as they push above ground, yet in time they get so troublesome in persistently making their appearance, that it becomes necessary to take up the plants so as more effectually to cut away the parts from which the shoots spring. Where work of this kind has to be performed no time should now be lost in carrying it out, as if done at once the removal will interfere less with their blooming than it would later on. Advantage should be taken of the opportunity thus afforded of digging the ground over more deeply than is possible whilst it was occupied by the roots of the plants, and also of supplying whatever may be needed in the shape of new soil and manure; and where the land is of an over-light nature it will answer for Roses much better if a liberal quantity of marl, or, this wanting, clay is applied. In the case of either being used it should first be spread over the surface, where it will have an opportunity of getting mellowed by the weather, to enable which it will be best to put the material on the surface as it now stands with the Roses in it before taking them up, and when the pulverising is effected, the best way to proceed will be to begin at one end and take up a sufficient number to admit of a good trench being opened, replant-

ing them as the work proceeds. By this means some labour will be saved and there will be the advantage of the ground not being trampled on more than is necessary to solidify the soil sufficiently about the roots as the trees are put in, staking and tying each as the work goes on. Where any additions are intended to be made, the sooner they are got in and planted the better, especially if we should have frost continued for any length of time towards spring, as when this occurs it sometimes keeps on so long that the work cannot be finished until the time comes when the buds have commenced to swell, in which case they cannot be expected to do much in the way of flowering the same season.

Selection of Varieties.—As to the description of Roses that it is advisable to plant, each case will be best ruled by circumstances. Those who hold the exhibition standard of Roses to be the only ones worth cultivating will, as a matter of course, confine their planting to such; but much the greater number of people who grow Roses for ordinary purposes will far better attain that which they want by selecting those that come more correctly under the class of garden Roses, which, although to some extent deficient in the properties required for exhibition, are nevertheless possessed of the free-growing, profuse-flowering habit. It is the lack of these latter qualities that so often ends in disappointment to those who, with little knowledge of Roses, make their selection alone from the flowers they see shown, many of which, even in the most suitable soils, and under skilful management can only be induced to produce very few blooms from a plant in the course of the season. Wherever the district and situation are such as to give a reasonable chance of their doing well, I should advise a good number of the Tea varieties being grown, and when there is no prospect of these thriving in the open ground, vacant places on walls should be filled with these beautiful continuous-blooming kinds that for cutting have no equals. The old blush and crimson Chinas should have a place in every garden; they are among the first in spring to bloom, and equally the latest in autumn. Respecting the varieties that produce flowers fit for exhibition, there are now such numbers in all colours that are free growers that there is not the least necessity for the general cultivator to plant any of the weakly-constituted indifferent-growing sorts.

Description of Stock.—As to selection in regard to the kind of stocks the plants have been worked upon, the nature of the soil should be considered, the Dog Rose doing better in some, Manetti in others; but in good holding Rose soil the Brier usually does best, and where this is the case I should give it the preference. To amateurs who have not had much experience in Rose culture I should strongly urge the planting of dwarfs rather than either standards or half-standards.

T. BAINES.

AMERICAN NOTES

The Foster Peach.—This new variety has proved to be one of the most profitable market Peaches in Western New York, and those who have had large plantations have made handsome profits from it this year. It closely resembles Early Crawford, and has been supposed by some to be identical with that variety. It differs, however, from the Crawford in the sweeter flavour, obvious to any one who tests the two side by side, and by its rather higher colour. We find that both Early and Late Crawford have been sold under the name of Foster.

Thinning Apples.—President Wilder stated in his recent address that in the English market American Apples of good size, fair, and properly packed, commanded fully double the price of those which had not received that care; and that in our own markets Baldwin Apples of a grower who carefully thinned his fruit brought 2 or 3 dols. per barrel; while his neighbours, from trees not thinned, received but 1 dol.

Chinese Pears.—The "Iowa College Quarterly" recommends Chinese Pears as a substitute for the Quince where the latter does not thrive. They are quite unlike our well-known Pears, firm in texture, and will grow freely grafted on the Apple. They are exclusively for culinary purposes, and when cooked are said to exceed the Quince in flavour. Their complete hardiness remains to be tested.

Low-branched Lawn Trees.—Is it generally understood that no lawn tree properly managed can be allowed to lose its lower branches? In a general way it is. Many people recognise the importance of this system of treating lawn trees; that is, they recognise it in a limited way. They think a purple Beech should be low, and a sugar or Norway Maple high. On the other hand, the majority probably give little thought to the matter when they come to plant their lawns. Let us consider the question a moment. It would be, perhaps, generally conceded that the most perfectly-grown tree is the one that attains the most pleasing and complete development of its normal or natural habit. But trees, we know, always branch

low under the most favourable conditions; therefore, we are safe in retaining the low-branched form on the lawn. Other considerations likewise favour this treatment. The stem is thus protected from injury, from sun and wind, and the uninteresting naked stems or trunks, often masked imperfectly with shrubbery, are thus done away with entirely. One of the most perfect specimens of any tree I ever saw was a Norway Maple planted on an open lawn, where its contour from ground to summit was one grand sphere of rich green foliage. Surely, in view of such facts, we need not adhere to the old method of training all trees into a naked stem devoid of foliage. There is no lawn tree that is improved by such treatment, and only the exigencies of sidewalk or road can excuse such barbarous treatment in the case of our noblest trees.

Premature Ripening of Apples in America.—The unseasonably warm weather continues, and its evil effects are seen in a good many ways. Apples are rotting on the trees in many places. We find that on sandy soil even the late keeping varieties will not winter as well as on clay or heavy loam. It is not often that we have so much warm weather late in the season as we have had this autumn. Two years ago there was, however, such weather. That year it was difficult to keep Apples; but those who put them up early in cool cellars and saved them till mid-winter, got a good price for them. I think that this can be done this year. The air outside is much warmer than in cellars until quite late, so that early gathering and storing is advisable. There is, besides, a difference on the same tree. Apples in the centre and north sides of trees will be less mature and will keep better than those otherwise situated. In these hot October days some varieties of Apples in full exposure to the sun seem absolutely scorched with the heat. It is possible that even in Western New York we shall have to select northern exposures and rather heavy soil in which to grow Apples that will prove good keepers.

Peaches.—The Washtenaw Pomological Society, in its report, says that on elevated ground the most profitable fruit is the Peach. More bushels are grown to the acre than of Apples, while one bushel of Peaches sells for about as much money as five bushels of Apples. Four continuous crops have been grown, the amount gradually increasing each year with the growth of the trees. The Peach tree bears younger than the Apple. The sorts mentioned are the following: Amsden and Hale in moderate quantity and on dry soil, on account of liability to rot; Troth's Early, Early Crawford, Oldmixon, Late Crawford, Hills' Chili, and Smock. These ripen in succession, a matter more important with Peaches than with fruits which will keep for weeks.

Fruit House.—Mr. Reeves, of Berrien County, stores his fruit for winter in a fruit-house which consists of a cellar under his carriage-house, situated on a hillside, so that the entrance to the fruit-room is on a level with the ground outside. It is lined inside 4 in. from the wall, the space being packed with sawdust, and it is filled in between the joists overhead. The temperature is easily kept near freezing by means of ventilators. The Apples are placed in barrels, and keep almost perfectly. The last shipment was made this year on the 8th of July, and the fruit sold for \$3.25 per bushel.

The Dwarf Catalpa.—Again I am drawn to say something of Catalpas. Their bright green massive foliage so attracts one by its permanent beauty and health at this season, that I shall not excuse myself for reverting to them. This time, however, I wish to note the value and beauty of the dwarf Catalpa (Catalpa Bungei), a perfectly hardy plant of the most shrub-like character. Retaining all the excellence of colour and form pertaining to Catalpa foliage, as well as its autumn permanence, it is yet always a round compact shrub of considerable size. This rounded shape is decidedly formal, and fits it for standing singly by gates or corners of paths, and also unfits it for grouping with other shrubs. A mass of the dwarf Catalpa, however, planted by itself, especially on a side hill beneath the eye of the passer-by, is very effective in autumn, or indeed at any other time of the year. Notwithstanding all these excellent ornamental qualities, the dwarf Catalpa is little used on lawns. Must we attribute this to want of knowledge of its value, or is it mere neglect?

Kew Garden.—This world-renowned establishment, founded and kept up at such expense, appears to be in poor condition in some respects. It is said that the falling of the rafters in the glass structures actually endangers visitors, nor is this rottenness confined to the older houses. Of some which have been built only a few years, the rafters are not only rotten, but they are absolutely dangerous to passers-by. And yet we are told that on a special day 53,000 people visited the garden. What a pity that these rafters could not have been at the first thoroughly and repeatedly soaked with crude petroleum, and then covered with a suitable adhesive paint!

Dolichos japonicus.—This Japan climber is a new plant on the lawn; indeed few have seen its flowers, at least in America. The leaves are large—8 in. in diameter—of a rich green colour, and rounded in a curious three-lobed way. But the wonderful quality possessed by this climber is the extraordinary vigour of its growth. I am simply stating a fact when I say that in several instances within my personal knowledge it has accomplished a growth of 30 ft. in a single season. Surely such vigour and beauty in a climber should fit it for much important work on the lawn, especially for screening piles of stone and other unsightly objects. The *Dolichos japonicus* has proved to be quite hardy. The flowers are said to bloom in long racemes, with purple and white colours intermixed.—*Country Gentleman*.

The Apple Trade in Canada.—A good business continues to be done in shipping winter Apples to England, and it is estimated that between 5,000 and 8,000 barrels will be forwarded this week. Latest sales on the other side were made at about 23s. and 25s. per barrel, some fancy lots it is said going as high as 30s. Winter Apples in car lots here are worth 275 dol. per barrel, one lot of 200 barrels is, however, reported to have been sold at 260 dol. Several buyers from England and Scotland who arrived here a fortnight ago are now travelling through Western Canada making purchases.—*Montreal Star*.

One of our hands remarked to us the other day while we were surveying a field full of new Potatoes, new Turnips, Beets, &c., which were for the most part failures:—"Tell you what it is, these 'speriment' things ain't worth nothing anyhow." It is a truth that testing "novelties" in a large way is a costly business. But gems do crop out now and then, and those who aid in making them known are engaged in a good work.—*Rural New Yorker*.

NOTES OF THE WEEK.

American Bulbous Plants.—Messrs. Woolson & Co., New Jersey, have sent us examples of some of the rare bulbous plants of North America. They were packed in dry soil in cylindrical wooden boxes, and all of them arrived in capital condition, some of the bulbs even emitting tender rootlets, evident proof that such a method of transmitting bulbs long distances is highly satisfactory. Amongst the bulbs were some of *Lilium superbum*, which, in New Jersey, throws up flowering stems over 10 feet in height; also roots of the true *L. Catesbaei*. They also send bulbs of the rare and beautiful *Cooperia pedunculata* and *C. Drummondii*, the only two species of the genus known. Also examples of the new *Amaryllis Treatiae*, a pretty species, allied to *A. Atamasco*; *Nemastylis geminiflora*, *Camassia angusta*, various kinds of *Calochortus*, *Lilium*, *Fritillaria*, &c., and a plant of the rare *Anemone deltoidea*, a Colombian species. Messrs. Woolson are doing good work in collecting and distributing, under their true names, the many beautiful hardy plants of North America.

Libonia penrhosiensis.—That well-known Libonia, *L. floribunda*, is far surpassed by this beautiful hybrid, both as regards habit, profusion of flower, and brightness of colour. It is largely grown in Mr. Turner's nursery at Slough, and a very pretty effect it has when seen in quantity. Its bright yellow, scarlet-tipped blossoms render it very showy, and make it one of the most useful of plants for greenhouse decoration in autumn and winter. It is quite as easily grown and propagated as *L. floribunda*.

The Fire Thorn.—The Himalayan variety of this well-known cultivated shrub (*Crataegus pyracantha crenulata*) affords a striking instance of the manner in which some plants behave in different situations or localities. A case in point is the fine example of it now in full beauty against one of the walls at Chiswick, which is said to be the variety *crenulata*, and a specimen of the same kind against the walls at Kew, which obstinately refuses to bear even a small crop of berries. Either the nomenclature of these two kinds is at fault, or there are two forms of one variety, the one bearing an abundant crop of berries every season, the other not worth growing except for its deep green foliage, and there are many handsomer foliaged shrubs than it. This is not a solitary instance, for similar examples have been noticed in other gardens. If it could be satisfactorily proved that the *crenulata*-leaved kind is a shy berrying variety, then intending planters would know which to select, and thereby obviate the disappointment that now often occurs.

Co-operative Gardening is now being recommended. Good co-operative fruit stores in London and all large towns are much to be desired, not to supersede, but rather to augment the supply afforded by shops and fruit salesmen, these being unequal to the task of distribution. America can send us Apples of better quality than those generally produced in our cold and dripping climate, and in almost any quantities; but our distributive system is so imperfect

that much of this bounteous supply of good fruit is kept out of the reach of the poorer classes altogether, and those who do obtain it can only do so at an enormous percentage on prime cost and carriage. Here is a problem which will pay any one to work out thoroughly well.

Australian Apples, although excellent in quality, are, as mentioned last week, seldom seen in our markets, but in the Indian ports and at Singapore the best samples are eagerly bought at prices varying from 4s. to 6s. per dozen. That this should be so in lands where the most delicious of tropical fruits are abundant is all the more remarkable, and shows that a good Apple is a fruit universally appreciated by Europeans all over the world. One would think that when good dessert Apples cost from 2d. to 6d. in Covent Garden it would pay to cultivate more of them on our own land.

Winter Tomatoes.—It was very cheerful the other day at Kensington to see the beautiful colour of the Tomatoes, which, however, appeal most to the epicure. Mr. Gilbert, of Burghley, assures us that the best Tomato for winter work is Vick's Criterion, a smooth, round sort with a slightly crimson hue. It holds its flowers well above the foliage in winter, and sets very freely at that season.

Loddington Seedling Apple.—We have to thank Mr. Lewis Killick, of Langley, Maidstone, for fine specimens of this excellent Apple. It is a kind which never fails to produce a crop of fruit in the worst of Apple years, and is a variety which is being largely planted, or rather grafted on trees of other sorts, in Kent. The tree itself ungrafted never attains a very large size, and is therefore especially suitable for small gardens, whilst the fruit for autumn and winter use is all that can be desired in an Apple. We believe trees of it can now be obtained in some of the best fruit tree nurseries.

The Blue Browallia (*B. elata*).—This pretty Peruvian annual is an important plant in the Slough nurseries for furnishing cut flowers throughout the autumn and winter months. Blue flowers being then scarce, this is a capital plant for supplying them, as it is free as regards growth, easily grown, and flowers continuously. It is also equally well adapted for pot culture, and for border decoration in summer.

Effect of the Frost on Chrysanthemums.—The bright days of a week ago, which made the autumnal aspects of the garden and the wood so beautiful, were followed by frosts very severe on garden vegetation, the flowers of the large collection of Chrysanthemums in Victoria Park being destroyed, even those protected by canvas and mats. As Mr. McIntyre grows some 3000 plants in pots this is a serious loss to flower-loving people in the east end.

Ceanothus Gloire de Versailles.—This is a very useful shrub for cutting purposes in autumn, as its pretty blue blossoms are so distinct from the generality of other flowers at that season, and are, moreover, borne in great profusion. In Mr. Turner's nursery at Slough there is a fine plant of it against one of the walls, which we saw a few days ago in fine flower. *C. papillosus* and *C. thyrsiflorus* are also planted against the same wall, and they make excellent bushes, and in their flowering seasons are very attractive with their bright azure-blue flowers. These kinds are apparently quite hardy in this position, as they have been planted for several years though unprotected in winter.

The Jalap Plant (*Exogonium Purga*).—There are not many cultivated plants that are of economic value which make showy garden flowers, but the Mexican Jalap Plant is an exception, as its blossoms are really very handsome, being nearly as large as those of the native large-flowered Bindweed (*Convolvulus sepium*), and of a pleasing violet-purple tint. Like the last-mentioned plant it is of twining habit, and looks very pretty when allowed to ramble over other plants. We saw it in flower at Kew a few days ago against the wall of the Economic Plant House. In the more favoured parts of the country it thrives much better than in the open air at Kew; for instance, Mr. Ellacombe has it rambling amongst shrubs, &c., in the wildest manner, and it flowers beautifully in such a position in his garden at Bitton.

Coriaria ruscifolia.—Those who care for beauty of form, apart from all else, might like this New Zealand shrub. It is a distinct plant. The shoots are very graceful, and the small green flowers hang down in long slender racemes. It is in flower in the Temperate house at Kew.

Jasminum didymum.—A mid-winter flowering plant is more valuable than one that flowers at other seasons, a remark which applies to this pretty Jasmine, which is a native of tropical Australia and the Pacific Islands, and which is now flowering in the Palm house at Kew. It is of twining habit, with glossy green trifoliate leaves, from the axils of which are produced long pendulous festoons of white flowers about $\frac{3}{4}$ in. long, and deliciously scented. As a

pillar plant or for training to rafters it will be found a useful subject, and valuable for cutting purposes.

New Double-flowering Primulas.—The new races of these beautiful greenhouse plants that have been raised by Mr. Gilbert, of Burghley, and exhibited by him at South Kensington on Tuesday last, are quite distinct from the ordinary double-flowering kinds, inasmuch as they are of a much stronger constitution and more floriferous, and the flowers are larger and more compact in form, and have a pleasing variation of colour. For general decorative purposes these will be a decided acquisition, and, as well as for cutting from and for button-hole bouquets, they will be found especially useful, as they keep in good condition a long time. We understand that the stock has passed into the hands of Messrs. Osborn & Sons, Fulham, who will be prepared to distribute them shortly.

Arthrotaxus selaginoides.—This singular jointed Yew is used extensively by Messrs. Charles Lee & Son, Hammersmith, for decorative purposes. The Selaginella-like appearance of its forked stems, furnished as they are with deep green scaly leaves arranged in spiral rows, renders it well adapted for the purpose. In Tasmania, its native country, it attains a height of from 10 ft. to 20 ft., but large specimens of it are rarely to be met with in this country. Unfortunately it is not hardy enough for full exposure in our climate, but it requires only a cool greenhouse temperature.

Mexican Salvias.—The appreciation bestowed on the beautiful cut specimens of Salvias which Mr. Cannell, of Swanley, brought to the meeting at South Kensington on Tuesday last, well exemplified how really distinct plants, which formerly were generally cultivated, become supplanted by novelties, and thereby rejected from gardens in general, and are only to be found in botanic gardens or in gardens of which that of Sir G. Macleay, at Pendell Court, may be taken as the type. Mr. Cannell's specimens consisted of *S. Bethelli*, a bright coloured and otherwise very fine variety of *S. involucrata*. It has velvety, green, heart-shaped leaves, and racemes of flowers that are $1\frac{1}{2}$ in. long, of a bright rosy pink hue, with the upper lip of the corolla covered with a wool-like substance, and the lower one with a conspicuous spot of white. Another very distinct character is the pink globular cluster of unexpanded flowers surmounting the raceme. From this character its specific name was derived. The other kinds which were shown were *S. ianthina Hoveyi* and *S. splendens Bruanti*. The former is a deep purple flowering kind, very pretty and desirable; the latter a remarkably brilliant coloured form of the well known *S. splendens*, with bloom of the brightest scarlet.

Heterocentrum mexicanum.—This is certainly one of the loveliest of plants which flower at this season. It is an old stove favourite, but so much neglected as not to be often met with. It is one of the prettiest of the Melastomads, and one of the most easily grown. Its flowers, which are of the most delicate rose colour, are arranged in panicles, perhaps 1 ft. long, terminating an erect leafy stem of three or four times that length. The leaves are nearly oval, and, unlike the majority of Melastomads, are feather-veined; their surfaces are thinly clothed with silky adpressed hairs. An upright yet graceful habit allows this plant a place where others could not stand. There is a white variety of it worth having and the most rare. The specific name indicates its native country.

Paullinia thalictrifolia.—We have to thank Mr. Robert Veitch, of Exeter, for flowering specimens of this extremely elegant stove plant, a state in which it is but seldom met with in gardens. The flowers are produced in short axillary racemes, and have small white petals. Though not showy, it is very interesting in a flowering state.

Royal Horticultural Society.—The following are the arrangements decided upon for the meetings, shows, &c., for the year 1880. Fruit and Floral Committees:—Tuesdays, Jan. 13; Feb. 10; March 9, 23; April 13, 27; May 11, 25; June 8, 22; July 13, 27; August 10, 24; Sept. 14; Oct. 12; Nov. 16; Dec. 14. Whit Monday Show, May 16. Great Summer Show, June 8, 9, 10, 11. Artisans' and Cottagers' Show, August 2, Bank Holiday. Conversation, Wednesday, May 26. Evening Fête, July 21. The date of the Rose Show and Exhibition of the Pelargonium Society will be announced hereafter.

READERS will greatly oblige by sending us notes for this column concerning any subjects of current interest—new or rare plants in flower, or the like.

Nerine undulata (p. 446).—To this must be added another late-flowering species, viz., *N. humilis major*, which is quite a gem. Its deep rose, or rather magenta-red flowers, are large and also wavy margined. I consider this to be as good as the earlier scarlet flowered sorts.—MAX LEICHTLIN, *Baden-Baden*.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

NOVEMBER 18.

THE plants exhibited on this occasion were not so numerous as might have been expected, and the almost entire absence of Chrysanthemums, which are now in perfection, was very conspicuous. However, there were many interesting plants shown, the most noteworthy being a small group of choice Orchids from Messrs. Veitch & Sons, Chelsea, including a remarkably fine variety of *Lælia Dayana* named *superba*. Its flowers are of an unusually rich deep plum colour, and very distinct from the ordinary forms. This was deservedly awarded a first-class certificate. In this group were also the new *Cypripedium Spicerianum*, shown and certificated at the last meeting, and exhibited again in order to show the very distinct colour of the upper division of the flower; also *Cattleya fausta superba*, a fine hybrid between *C. exoniensis*, itself a hybrid, and *C. Loddigesi*; it partakes in a remarkable degree of the former plant. *C. Marstoniana* was another hybrid shown. It is the result of a cross between *C. labiata* and *C. Loddigesi*, but very distinct from either. The white-flowered form of *Oncidium ornithorhynchum* and the curious little *Stelis Bruchmülleri* were likewise comprised in the group. From Mr. Bull, Chelsea, came a larger but similar contribution. The collection consisted of Orchids in flower, such as the rarely-to-be-seen *Cymbidium giganteum*, the superb *C. Mastersi*, a panful of the rare *Trichosma suavis* (a charming sweet-scented Orchid allied to *Eria*), the showy *Oncidium Rogersi*, *Lælia autumnalis*, and others. Amongst fine-foliage plants were the very elegant *Macrozamia plumosa* and *M. Denisoni*, and *Kentia australis*, *Areca concinna*, *Thrinax elegantissima*, all handsome Palms, also *Encephalartos villosus*, and *Lomaria Dalgairnsia*, and the lovely *Tillandsia Lindenii*, the rosy flower-spikes and purple flowers of which enlivened the whole group. A most attractive feature was a fine group of double flowered Primulas raised and exhibited by Mr. R. Gilbert, Burghley. Several dozen plants were staged, comprising four varieties, viz.: *White Lady*, a pure white flowered kind, with pips large and plentifully produced on short stout stalks; *Marchioness of Exeter*, with white flowers streaked with crimson; *A. F. Barron*, similar to the last, but with ground colour of a purplish shade and faintly striped with a darker hue; and *Lord Beaconsfield*, a beautiful kind with flowers of a bright rosy-pink colour. A fine collection of the single flowering kinds came from the Society's gardens at Chiswick. Amongst these were some having unusually brilliant flowers, such as *Chiswick Red* and *rubro-violacea*, both with blossoms of a rich crimson shade, and both were awarded a first class certificate. In the same collection were *Village Maid*, a pure white kind, and several other varieties of the *fimbriata* and the *filiifolia* type, all well grown and exhibited. From Chiswick came also a fine group of *Abutilons*, comprising several of Mr. George's seedlings and other beautiful varieties, such as *Prince of Orange*, *Reine d'Or*, *Boule de Neige*, &c., as well as a tastefully arranged group of fine-foliaged stove and greenhouse plants, and also cut branches of *Crataegus pyracantha crenulata* gathered from the plant, now in full berry, against one of the walls at Chiswick. Messrs. Jackson & Sons, Kingston, contributed a collection of cut blooms of *Chrysanthemums*, including several of the newer varieties; the majority of the blooms were large and well formed, and exemplified good culture. A large umbel of flowers of the beautiful *Bomarea Carderi* was shown by Mr. Green, from Sir G. Macleay's garden at Pendell Court; as the flowers were of the second crop of bloom this season, they were necessarily smaller, but in this condition they are extremely handsome. Mr. H. Cannell, of the Swanley Nurseries, brought cut flowers of some very beautiful Salvias, which, though their types are by no means of recent introduction, are seldom to be met with in cultivation; they consisted of *S. involucrata Bethelli*, *S. splendens Bruanti*, and *S. ianthina Hoveyi*; these are alluded to in another column. Mr. Cannell also showed some new kinds of *Chrysanthemums*, and a bunch of the original single-flowered species. Mr. R. Dean again exhibited plants of the pretty *Marigold Diadem*, and also a fine *Hose-in-Hose Primrose* with deep orange-coloured blooms. Mr. Roberts, gardener at Gunnersbury Park, sent an unusually fine variety of *Odontoglossum Alexandræ*, the flowers of which were large and beautifully marked; to this example a cultural commendation was awarded. A special vote of thanks was accorded to Mr. H. Bennett, Manor Farm Nursery, Stapleford, Salisbury, for specimens of his pedigree Roses bearing seed-pods in various stages of ripening; these are alluded to elsewhere. A fine group of *Cyclamens* was exhibited by Messrs. Sutton & Sons, Reading, all the plants of which were obtained from seeds sown in October last year, thus clearly showing how fine plants of *Cyclamens* may be obtained in a comparatively short space of time.

Fruit.—Some well-grown bunches of *Gros Colmar* Grape were

shown by Mr. Wood, The Gardens, Leybourne Grange, Kent. They were packed in baskets to illustrate Mr. Wood's mode of sending Grapes to market and elsewhere. Examples of Alnwick Seedling Grape were exhibited by Mr. D. P. Bell, Clive House, Alnwick; one bunch was from the original Vine, which was unusually fine both in bunch and berry; another from a Vine of the seedling grafted on a Black Hamburgh stock; the berries of this bunch were somewhat small. It was stated that 60 lb. of fruit had been produced this season by a Vine of this variety, which was planted in May, 1877. Mr. Sage, Ashridge Park, Berkhamsted, sent a dish of Vicomtesse Héricart de Thury Strawberry, which, notwithstanding the lateness of the season, was remarkably good. A dish of excellent fruits of Pitmaston Duchesse Pear was shown by Mr. Wildsmith from the gardens at Heckfield, where they were grown on a wall with a western aspect. Some seedling Apples and Pears were exhibited, and amongst them a handsome variety of Apple bearing the name of Jolly Miller was shown by Messrs. Wood & Ingram, Huntingdon. Mr. J. Chesher, Peterborough, also showed Apples and Pears. A collection of fifty kinds of Apples and Pears was exhibited Mr. S. Ford, Leonardslee, Horsham, which included some well-grown examples.

Vegetables.—One of the most interesting features of the meeting was the competition for the valuable prizes offered by Messrs. Sutton & Sons, Reading. These prizes amounted in value to nearly £50, and consisted of gold, silver, and bronze medals with added money. The competitors were numerous, the entries numbering forty-four, and the classes were very closely contested. Most of the collections contained some excellent examples of skilful culture, though of necessity some of the produce was not so large as otherwise would have been the case in a more favourable season. The best collection of twelve kinds was shown by Mr. G. Neal, gardener to P. Southby, Esq., Bampton, Oxford. It included well-grown examples of Ayton Castle Leek, International Kidney Potato, Suttons' King of the Cauliflowers, Suttons' Improved Reading Onion, Suttons' Matchless Brussels Sprouts, Suttons' Improved Dark Red Beet, Suttons' Sulham Prize Celery, Suttons' Snowball Turnip, Hathaway's Excelsior Tomato, Spanish Cardoon, and Suttons' Student Parsnip. Mr. G. Muir, Margam Park, South Wales, won the second prize, and the third prize was awarded to Mr. W. Iggulden, Orsett Hall, Romford. There were nine exhibitors in this class. The best dish of Suttons' Improved Reading Onion came from Mr. G. Neal, and the next best from Mr. Wildsmith, gardener to Viscount Eversley, Heckfield Place, Winchfield. Seventeen dishes were shown for these prizes. Mr. J. Townsend, gardener to Mr. P. McKinlay, took the first prize for Suttons' Woodstock Kidney Potato; and the second was won by Mr. H. Harris, Denne Park, Horsham. The tubers shown were excellent in every point, but there were but five dishes shown. In the class for Suttons' Magnum Bonum there were sixteen exhibitors. The best dish came from Mr. J. Fairweather, Halston, Oswestry; and Mr. J. Richardson took the second prize. Messrs. Sutton & Sons exhibited samples of Magnum Bonum, a variety which has resisted the disease, and for the introduction of which, as our readers are aware, the public are indebted to the Reading firm. A collection of fifty-four of the best and most distinct kinds of Potatoes was also exhibited by Messrs. Sutton. Mr. P. McKinlay, Penge, also showed fifty-four kinds, which were all remarkably well grown. Messrs. Carter & Co., High Holborn, exhibited a sample of their Improved Magnum Bonum and Scotch Champion, both reputedly disease-resisting sorts; also fifty-four dishes of American-grown Potatoes, which have just arrived, and about three dozen dishes of English-grown varieties. The same firm also contributed an interesting collection of sixty-two varieties of Turnips and Swedes which were grown in their trial grounds at Forest Hill. Samples of a very fine sort of Brussels Sprouts were exhibited by Messrs. R. P. Ker & Sons, Aigburth Nurseries, Liverpool. These were remarkably prolific, and are said to be very hardy.

ROYAL AQUARIUM CHRYSANTHEMUM EXHIBITION.

NOVEMBER 19 AND 20.

THE annual show of the Borough of Hackney Chrysanthemum Society was held at the Royal Aquarium, Westminster, on Wednesday and Thursday last. The show was in every respect an excellent one, and comprised numerous examples of skilful culture. The classes on the whole were well filled, and in the majority of instances closely contested. In the premier class for the best group staged for general effect there were but four exhibitors. The first prize, consisting of a silver cup, was taken by Mr. J. Balaam, Clapton, who had a collection of well-grown plants comprising several standards; amongst these were fine examples of Mrs. Dixon, Julie Lagraveré, George Glenny, Mrs. G. Rundle, Mr. Brunlees, Brilliant, Faust,

Calliope, &c. In the next class for six standards, the first place was taken with handsome plants of the Cossack, Mrs. G. Rundle, Mrs. Dixon, Mr. G. Glenny, Elaine, and Mrs. Haliburton. These half-a-dozen constituted the best plants in the show; in fact, such excellent specimens are seldom met with; they were shown by Mr. W. Brett, gardener, The Cranmers Mitcham. The other classes for pot plants did not include many plants worthy of special comment. The cut blooms were unusually good. The best twenty-four blooms of the incurved section were shown by Mr. G. Langdon, gardener, Brook House, Clapton. The finest of these were Prince Alfred, White Globe, Queen of England, John Salter, Princess Teck, Barbara, White Venus, Golden Beverley, Nil Desperandum, Hero of Stoke Newington, Mrs. G. Rundle, Lady Hardinge, and others. In the next class for a dozen blooms there were nine exhibitors. Mr. G. Langdon was first with a capital lot comprising fine blooms of the leading varieties. For the class for six blooms there were some fine examples shown by eight exhibitors. Mr. Williams, Stoke Newington, took the first prize with Yellow Beverley, Venus, White Venus, Barbara, Mr. G. Glenny, and Princess Teck. The next three classes were for amateurs within the Society's districts, but the stands contained not many remarkable flowers. The silver cup for twenty-four incurved blooms was awarded to Mr. C. Sanderson, Willesden, who showed some excellent blooms of John Salter, Yellow Beverley, White Globe, Mrs. G. Rundle, Prince of Wales, James Salter, Mr. Brunlees, Princess of Wales, &c. There were seven competitors in this class. The next three classes were for twelve and six incurved blossoms, and in each the exhibitors were somewhat numerous. There was only one exhibitor in the class for twelve large Anemone-flowered varieties, and five in the next class for bunches of three blooms of each variety. The Japanese kinds were admirably shown, and the class closely contested. The first prize collection consisted of Meg Merrilees, Red Gauntlet, Fair Maid of Guernsey, Oracle, Elaine, Sarnia, Garnet, Gloire de Toulouse, Peter the Great, &c. There were seven competitors in this class. The special prize offered by Messrs. Dixon & Co., Hackney, for twenty-four kinds of the Japanese varieties, was also closely contested. It was won by Mr. E. Beckett, Esher, Surrey, with excellent blooms of Apollo, La Nympe, Nuit d'Hiver, Gloire de Toulouse, La Frisure, Peter the Great, Album plenum, Chang, Mons. Crousse, Sarnia, Fair Maid of Guernsey, and others. There were three other exhibitors who showed excellent blooms on their stands. There were but two entries for six foliated plants, and those shown were not worthy of special note. In the miscellaneous class, Messrs. Jackson & Son, Kingston, showed cut blooms of Japanese Chrysanthemums. Mr. Williams, Holloway, contributed a few groups of foliated plants. Mr. Cannell, Swanley, sent cut blooms of various kinds of zonal Pelargoniums, and several plants of the very graceful Prenanthes elegantissima. Mr. Boller, Kensal New Town, exhibited a collection of Cacti, Agaves, &c.; and Messrs. Hooper & Co., Covent Garden, sent a tastefully arranged collection of dried Grass, flowers, &c.

FRUIT SHOW AT HEREFORD.

THE Woolhope Naturalists' Field Club has lately set about the task of improving the growth of Apples and Pears in Herefordshire. A committee of its members, called the Pomona Committee, is now engaged in bringing out a new edition of "Knight's Herefordshire Pomona." Two parts have already been published, and if the editors should have sufficient support to enable them to carry out the whole of their design, the result will be a work which, in the completeness of the text and the accuracy and beauty of the illustrations, will leave little to be desired. It was under the auspices of the Pomona committee that the late Apple and Pear show was held. In the show the principal prizes were taken by Kentish fruit, and chiefly by fruit shown by one exhibitor, Mr. Haycock, gardener to Mr. R. Pemberton Leigh, of Maidstone, who, in the amateur class, took all the first prizes but one, and in the free class eight first prizes out of twenty, and two second prizes. Another Kent exhibitor, Mr. Killick, of Maidstone, also took the first prize in the professional class (nurserymen or market gardeners) for an admirable collection of culinary Apples, which comprised splendid specimens of the following varieties:—Mère de Menage, Lord Suffield, Bedfordshire Foundling, Loddington or Stone's Apple, Peasgood's Nonesuch, Lord Derby, Cox's Pomona, Warner's King, and Tower of Glamis. Mr. Haycock's collection of dessert Apples included the Old and White Nonpareil, Duchess of Oldenburg, Sykehouse Russet, Cox's Orange Pippin, King of the Pippins, Ribston, Reinette de Canada, Golden Reinette, Summer Golden Pippin, Ashmead Kernel, Golden Knob, Mannington Pearmain, and other varieties; and his collection of culinary sorts, Lord Suffield, Peasgood's Nonesuch, Calville Blanc, Golden Spire, Small's Admirable, Lord Derby, Warner's King, Dumelow's Seedling, Belle Duboise, Alexander, Bedfordshire Foundling, Manks Colling, Ecklinville Seedling,

Northern Greening, Cox's Pomona, Hawthorn-den, and Hanwell Souring. In the free class for single plates of fruit, Mr. Haycock obtained the first prize for culinary Apples with six specimens of Belle Duboise, which weighed nearly a pound apiece; and first prizes in the class for Ribstons, Nonpareil, Russets, and Lady's Finger. Mr. Haycock's show of Pears was very fine, but Sir Henry Scudamore Stanhope ran him closely with an excellent collection from the famous cordon wall at Holme Lacey, upon which—as Sir Henry tells us in the second part of the "New Pomona"—within a space of 37 yards in length eighty-three Pear trees are trained, comprising forty-three varieties. As we are chiefly concerned with the commercial aspect of fruit growing, whether for domestic consumption or for other purposes, we do not propose to draw any conclusions from the show of dessert Pears, in which the collection was extremely rich, the best specimens in our judgment being in the collection of fruit grown in France, which contained also some fine examples of culinary and dessert Apples. No doubt the choicest sorts of Pears may, in favourable seasons, be produced in this country by private growers, as the collection showed by Mr. Haycock and Sir Henry Scudamore Stanhope testify, the weather notwithstanding; but in the market the English grower will, as a rule, be unable to stand against the importation from France and Jersey. Indeed, we understand that Mr. Haycock himself admitted at Hereford that, while he could beat all England, Jersey and France could always beat him.

ANSWERS TO CORRESPONDENTS.

Soil for Ferns.—*J. M.*—The best-growing varieties of hardy Ferns thrive best in two-thirds fibrous loam and one-third peat and leaf-mould in equal proportions. Lastreas, Scolopendrium, Athyrium, Polystichum, &c., grow all the more vigorously when top-dressed with a little thoroughly rotten manure. The smaller growing species, such as Asplenium Trichomanes, A. septentrionale, &c., prefer a fibrous peaty soil; in many instances an admixture of pieces of sandstone will be found beneficial. Where any doubt exists as to the nature of the soil required, employ peat, as all kinds of Ferns will flourish in that compost, although, as before stated, the major portion of the hardy kinds prefer stronger food. *B.*

The Cardinal-flower.—*Alpha.*—The varieties of the herbaceous Lobelia, of which *L. cardinalis* is one, should be treated as half-hardy plants; they should be lifted and wintered in a cold frame, which should have the protection of some covering in severe weather. Spring is the best time for propagating them, when the plants have pushed a few inches; the roots are then either divided, or the shoots taken off at the base and struck in gentle warmth.—*A.*

Peach Trees.—*A. B. C.*—Peach trees planted at the back of a lean-to Vinery, in which the Vines have reached the top of the house, will not do much good; but you need not be afraid that they will injure the Vines.

Covering Vine Borders.—*Subscriber.*—Sheets of thin corrugated iron would be suitable for covering Vine borders in winter, but they should also have litter under them. The sooner now they are covered the better.

Evergreen Climbing Roses.—*Rosa.*—These require but little pruning. If the plants are young, shorten back the shoots slightly in March, and train so as to cover the wall or trellis in the desired manner. In the case of old specimens, the weak growths may be cut out so as to allow the strong shoots to mature—thus enabling the plants to produce flowers of better quality than could be the case were the wood allowed to become so thick as to exclude sun and air.—*J. C.*

Sowing Seeds of Araucaria.—*P.*—Having well-drained some pans or boxes, fill them to within 1 in. of the rim with two-thirds leaf-mould and one-third loam, adding to the whole one-sixth of its bulk of silver sand. Insert the seeds in the soil about two-thirds of their length, so that the large end of each seed is not covered. Place the seed-pans in a cold house or frame, water sparingly, and be careful not to let them fall a prey to mice. March is the best time to sow.—*C.*

Drying Fern Leaves.—*Q.*—Fern fronds gathered now may be kept green and fairly fresh for some time if gathered when dry, exposed to the air for a short time to be thoroughly dry, and then laid between double leaves of newspapers, and put away in a cool room. The hardiest and toughest fronds, such as those of the Lastrea Filix-mas of the hedgerows, also of the Pteris aquilina or common Bracken, naturally keep best and longest. When used they should be handled with special care, as the pinnae are tender and liable to injury.—*A.*

Unfruitful Trees.—I have some Apple trees that seem to be too luxuriant to bear. Should they be root-pruned?—*E.* [Yes, if the same tendency to make much growth has been noticed in previous seasons. The way to root-prune has been recently referred to. If the trees are not too large, carefully taking them up and replanting will perhaps be the best way of giving the necessary check, as this affords an opportunity of giving the roots a horizontal direction, and brings them near the surface. Root-pruning merely chops them off without altering their direction.—*E. H.*]

Shallow Orchid Pans.—Where can Orchid pans, such as those used in Messrs. Veitch's nursery, be obtained?—*R. C. APPLETON, Beverly.* [The Orchid pans at Messrs. Veitch's, described in last week's GARDEN (p. 436), were obtained at Matthews' potteries, Weston-super-Mare.]

Names of Plants.—*F. M. J.*—There is no species of Dracena bearing the name you mention.—*C. T. D.*—1, Apparently Polypodium Phymatodes; 2, Aspidium coriaceum; 3, Scolopendrium vulgare ramosum.—*R. D. S.*—1, Lasiandra macrantha; 2, Begonia Rex.—*T. S. W.*—1, Helloborus niger major; 2, H. abschasicus.—*Conifers.*—1, Retinospora obtusa lycopodioides; 2, R. obtusa nana aurea; 3, R. obtusa nana compacta; 4, R. plumosa aurea; 5, R. obtusa nana.—*Anon.*—1, Veronica decussata elliptica; 2, too much withered to identify; send good specimen.—*M. C.*—We cannot undertake to name varieties of Chrysanthemums; they should be referred to some specialist.—*Orchid.*—O. ontoglossum crispum.—*D.*—1, Adiantum reniforme; 2, Asplenium ferulaceum; 3, A. Hookerianum; 4, Davallia Tyermanii; 5, next week.—*Enquirer.*—1, Berries

of Solanum Dulcamara; 2, Berries of Hippophae rhamnoides; 3, berries of a species of Eleagnus.—*S. T.* We cannot name seedling forms of Lawson's Cypress, as they vary so much in a mature state.—*T. (Macedon).*—Coccoloba platyclada.—*Enquirer.*—Dahlia imperialis, now finely in flower in the Palm-house at Kew.

Names of Fruits.—*R. S.* Pears—1, Forelle; 2, Beurré de Capiaumont; Apple not known.—*H. R. S.* Pears—1, Brown Beurré; 2, Beurré Superfin, Beurré Bosc.—*M. S. F.* Apples—2, Cox's Pomona; 3, Duck's Bill; 5, Adam's Pearmain; 6, Cockle's Pippin; others not known.—*S. T.* 1, Cellini; 2, Golden Pippin.—*Herts.* Pear—Beurré de Capiaumont.—Apples—1, Dumelow's Seedling; 2, Holland Pippin.—*W. T.* Pear 7, Gansel's Bergamot.—Apple, 9, Dumelow's Seedling.

Questions.

Lettuces under Cloches.—I am trying the French method of growing Lettuces for winter salads under cloches, and should be very glad if any of your correspondents would give me the benefit of their experience of the system, and would also give their opinion why the cloches are so little used in England? We have placed them over young Lettuces planted out early in October; the bed slopes gently upwards towards a brick wall, and has a full south-west exposure. The glasses are tilted up a few inches during the day whenever the weather is not frosty, but I suppose now it is cold enough to keep them down altogether. I shall be very grateful for any hints on the subject. *MRS. F. RICARDO, The Friary, Old Windsor.*

Boronia megastigma.—How shall I treat this so as to induce it to flower in the spring? The heat of my greenhouse averages 50° at night.—*M. M.*

Carnivorous Plants.—A friend writes to ask us not to be too sudden in our conclusions as to the relations between insectivorous plants and their prey. He points out that the loss of a few individual leaves or pitchers, as so often—indeed, almost invariably—happens in the case of Drosera dichotoma, Sarracenias, and Darlingtonia, when flies are captured by them, is not any proof of their either being injurious or of their not being essential. One must rather observe that plants which capture flies do, in the long run, benefit by them and produce a larger quantity of heavier seeds than those which are unfed either by accident or design. This much careful observation has proved to be the case. It is, of course, granted that all plants have the power of absorbing nutritious substances by their leaf tissues, but Dionæa, Nepenthes, and other so-called "carnivorous" plants differ in that a digestive fluid allied to Pepsine is secreted by their leafy tissue, and they are thus enabled to disorganise and feed on nutriment designedly brought into contact with them in a more material or solid state than is usually the case. It is admitted that much nonsense has been written on the whole matter, but when Nature makes a beautiful and efficient fly-trap like that of Dionæa, and leaves her victims with a copious peptic saliva after they are caught, there can be but little doubt that ultimate benefit is the result actually aimed at and ultimately attained. The whole question is admitted to be one of degree rather than of any marked difference in Nature's plan.

THE annual November soiree given by the Messrs. Sutton to their employés took place at Reading, on the 13th inst., when nearly 300 sat down to dinner. The several tables were presided over by the heads of departments, and at the principal table were Messrs. M. H. Sutton, A. Sutton, M. J. Sutton, A. W. Sutton, and Herbert Sutton. Mr. M. H. Sutton, the senior partner of the firm, in an appropriate speech, expressed the great pleasure which he felt at being able to meet them again this year. He missed, however, he regretted to say, some familiar faces which were wont to be present on former and similar occasions, and who had been removed by death. He spoke of the continued growth of the firm, and attributed such a result to the thorough business habits of the heads of departments, acting in conjunction with the heads of the firm, and to the care that was bestowed in the selections of seeds, for which the establishment had become world-wide famous.

HIGH GROVE, Eastcote, near Pinner, the residence of Sir H. Hume Campbell, Bart., was early on Sunday morning destroyed by fire. The strong room, which contained a large quantity of plate, was the only apartment that escaped. The cause of the fire is at present unknown, but it is attributed to a defective flue. Some fine trees, amongst them a lofty Salisburia and a large Catalpa, though near the burning building, have sustained, we understand, but little damage.

Remedies for Slugs.—If the readers of THE GARDEN generally are as much troubled with slugs in their gardens as we are, it may be useful to say that the best preventive against their ravages on our rockeries has been a cordon of silver sand put round the rarer plants; but I saw a gardener the other day using cork dust (in which the foreign Grapes come packed) freely. He said it was very effectual, as they evidently could not move over it. Its advantages over sand are lightness and looseness, but, no doubt, from many places it would be removed by the wind; still in sheltered nooks (those in which slugs are numerous) it might be used with advantage.—*JOHN WOOD, Kirkstall.*

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

LETTERS FROM SOUTHERN FRANCE TO A
GENTLEMAN IN ENGLAND.—No. I.

NICE, Nov. 20, 1879.

MY DEAR SQUIRE,—

When you kindly entertained me under your hospitable roof, and under a canopy of clouds which had been suspended, with two or three lucid intervals, for a period of twelve months over your ancestral chimnies, you told me, in the smoke-room, and on the eve of my departure for the Continent, that you considered our English climate to be, on the whole, the most delightful of all, and that, although you did not speak from experience, never having left our Fatherland, you firmly believed that in anticipating fine weather, and fine flowers, and beautiful scenery on the shores of the Mediterranean in November, I was preparing for myself a woeful disappointment. I thought of your warning when, to refresh my spirit in the tedious operations of the razor, I looked next morning from the window of my dressing-room, and saw the water still resting in peaceful patches here and there upon your pastures; your soddened stubbles, which must have yielded you something like three sacks of unwholesome Wheat or discoloured Barley to the acre; the trees in your park, which were unanimously throwing off their raiment, as though about to bathe in the stagnant pools hard by; and, in the gardens below, your Dahlias and Heliotropes blackened by the frost; and your exquisite geometrical design of variegated eels, tricoloured worms, and glowing tadpoles somewhat marred by the removal of a large portion of the plants to their winter quarters, and the disappearance of colour—a few pips of scarlet Pelargonium being honourably excepted—from the rest, and I said to myself, "It may be that my good host is mistaken; it may be that all travellers are not tail-less foxes, who would induce others to separate themselves from the comforts of home as they have; it may be that there are brighter, gayer, drier scenes than this. *Cras ingens iterabimus æquor.* I will go and see." Yes, though like the soldier who would displace his rival the sailor in the affections of the 'artless thing,' Madame Favart, I 'praise the land and blame the sea,' will I brave, nevertheless, all the perils which may confront me between Dover and Calais, all the wearisome journey from one end of France to the other, disdaining the recumbent luxuries of the Wagon or Coupé Lit, and will verify or falsify with the eyes which have read them, the glowing descriptions of the Riviéra.

Permit me, dear friend, to report results to you. Very near the end of the third week in November I am writing by a window wide open in the hot sunshine and under a bright blue sky. We (including delicate ladies quickly susceptible of cold) have just finished in this delicious atmosphere the excellent *café au lait*, &c., which gives the appetite a preliminary canter for the longer course or courses of the *déjeuner* hereafter. I look through the window aforesaid, and I see that huge Cactus, the Prickly Pear, full of fruit, four large specimens on one leaf, and close by a Lantana, with its gay red and yellow flowers, occupies a space about 14 ft. in height by 10 ft. in breadth. Some of the upper branches have left the wall and are drooping over an Orange tree laden with golden fruit. Next to this there is an Arbutus (which ripens its Strawberries so thoroughly here that the tree must no longer

be called Unedo; eat one and you will want no more, because they are good for food, both preserved and *au naturel*)—a great tree full of blossoms; and beside it the Japanese Medlar, also showing abundant promise of fruit.

If I go into the gardens of the hotel I find the *Datura*, with its beautiful white bells; *Roses Lamarque*, *Homère*, *Bourbon Queen*, *Mrs. Bosanquet*, the *Old Monthly*, and other *Chinas*, such as *Fabvier* and *Cramoisis Supérieure*, *Safrano*, *Gloire de Dijon*, &c. (in other gardens I have twice seen *Chromatella* or *Cloth of Gold*); the *Heliotrope* flowers freely and perfumes the air; *Plumbago capensis* covers great bushes with its blue-grey blooms; *Acacias* and *Abutilons* are here in profusion; and there are *Violets* and *Carnations*, *Zinnias* and *Pansies*, *Escallonias* and *Veronicas galore*.

The *Polygalas* and *Chorozemas*, which you English tie out in pots, and coddle under glass, and take to exhibitions, grow here to any size you please; and the *Palms*, which you put on your dinner-table, are great trees 15 ft. high, with their *Dates* hanging down in huge bunches on their long red stalks.

Do you remember a plant of *Bougainvillea glabra*, which you showed me in your stove, proudly pointing to its flowers, few in number, in complexion pale? I saw it yesterday *covering a coach-house*. It really made me for a few moments feel faint and ill with admiration. A mass of roseate beauty, with a tinge of mauve or blue—all flower (or rather bracts)—scarce a leaf to be seen. The ghost of William May must haunt that coach-house, and my heart yearned for Thomas Baines and a score of plantmen, who would have shared my happiness.

I have only given you a partial account of the gracious glory of this favoured place. I have said nothing of the mountains, and sea, of the Olive trees, Fig trees, and Vines; but I hope I have demonstrated to your reasoning power that there are more things in heaven and earth than are dreamed of in your chill and cloudy diggings, and that the sun, of whose existence you began to have excusable doubts, has still, when he pleases to show it, his ancient splendour and beneficence.

Accept the assurance of my highest consideration, and believe me to be

Yours ever sincerely,
S. R. H.

ENGLISH AND FRENCH EXHIBITIONS.

THE remarks which I made a few weeks ago on this subject have received so remarkable a confirmation, and that from an unexpected quarter, that I think a reference to the subject may not be out of place or wanting in interest. It may be remembered that I doubted the dictum in this case that "they manage these things better in France," and that the French system would be simply intolerable in this country. In one point I give the palm to them—the artistic arrangement of their exhibits; but I, at the same time, asserted that it led to such hopeless confusion that it would be impossible to carry it out here; but, as will be seen in the sequel, the testimony I quote rather concedes to us the superiority of arrangement. I refer to an article which has lately appeared in the "*Revue Horticole*," by M. Joly, Vice-President of the *Société Centrale d'Horticulture* of Paris, a copy of which he has been good enough to send me. I must premise, before referring to it in detail, that my former paper was written without reference to it, and I am sure his was written without any reference to mine, and that no better or more unprejudiced testimony could be given than that of the accomplished author of the paper in question.

M. Joly had attended the exhibitions at Cologne in 1875, Amsterdam in 1877, Ghent in 1878, and, finally, this year came over to London, in order to be able to report his experiences to the society of which he is vice-president.

He appears to have been so pleased with his visit that he earnestly urges his compatriots to run over for even a couple of days to London. To visit Covent Garden in the early morning, then to go to the exhibition at South Kensington and the parks; on the following morning to see the marvellous establishments of Messrs. Veitch and

Bull; in the afternoon to go to Kew, and return in the evening to Paris; and he thinks that, having got a taste of the horticultural treasures of London, they will, like *Oliver Twist*, "ask for more." The plan of holding exhibitions for special kinds of flowers finds favour with him, and the large sums of money, medals, &c., offered by the Royal Horticultural Society and the different special societies are evidently a matter of surprise; while I am glad to see that our system of judging is evidently preferred by him to that of the French; and the giving different small bodies of jurors separate portions of the show instead of having a whole mob of jurors going over all the exhibition, is all that is required to make an alteration which would materially improve the character of French exhibitions.

It will, perhaps, surprise those who have heard so much of the parks and promenades of Paris, that while M. Joly applauds without reservation our method of having exhibitions in tents, and desires that it should be imitated in Paris, he says there is no place in that city where such an exhibition could be held as at South Kensington. By-the-bye, he has made one very excusable error in supposing that the gardens belong to Kensington Palace.

In describing the tent at South Kensington, he contrasts it with their arrangement, and here, I think, is the most remarkable part of his paper, and I therefore give it *in extenso*: "With us there is generally made a Grass plot in the centre, with a depression in the middle, and baskets placed round it. On this are placed large plants as single specimens, and round the tent fine-foliaged plants, such as Palms and Rhododendrons, with the inevitable rock in the distance. In London the large tent is arranged differently, and I must say that its appearance is more happy. The ground is depressed in the centre, and raised up all round. Each group forms a terrace with Grassy shelves, on which are placed fine-foliaged plants. The general effect is more favourable. In the middle are placed the small plants, and the boxes containing cut Roses. At Brie Comte Robert, as with us, we are literally inundated with Roses, and the eye has a great difficulty in discriminating between the good and indifferent ones. This year I have seen exhibited in one lot 300 blooms of Jules Margottin; what interest could there be in seeing that? In London the competition is not only between amateurs, or between horticulturists, but with only one or three Roses of each variety; it is not the quantity that is of any consideration, but the quality. There is nothing that can be seen with us like the perfection of culture or size here exhibited. At the exhibition of May 4 last Messrs. Turner and Paul exhibited Roses in pots of the varieties Charles Lawson and Celine Forester. Each plant, more than two metres in diameter, had nearly 300 Roses equally distributed. It is the same with Dahlias, Grapes, &c.; it is an ordinary thing to see bunches of Grapes exhibited weighing eight to ten kilogrammes. In order to obtain these marvellous results the method of proceeding is always the same; to take away three-fourths of the fruit, or, if you wish, rub off for a truss of Roses nine out of ten to obtain one which may be exceptionally fine."

This testimony is, I think, very valuable, for it concedes to us that which we are continually reminded we do not possess—taste in our arrangement; and, notwithstanding all the outcry that has been made about our formal method of exhibiting Roses and cut flowers, it is looked upon by M. Joly as superior to the huggle-muggle of the French method. He expresses the same admiration of the method of showing Pelargoniums, Fuchsias, and even vegetables, and then enters upon the question as to the value of exhibitions in general, and the best method of improving those in Paris in particular. The great difficulty seems to be the place. The only places that he considers at all appropriate are (1) the grand alley opposite the Exposition des Beaux-arts; (2) the large centre reservoir of the Tuileries; and (3) the grand central alley of the Tuileries gardens, or that wherein the Orange trees are placed. It is to this latter that M. Joly inclines, but while borrowing many ideas from us, he still maintains that, in order to be a success, the exhibits ought to last a week at least; but, in the matter of prizes, he evidently desires to get away from the everlasting medals which constitute the sole rewards in the French exhibitions; and he proposes that professional horticulturists should have the option of medals or money, and that amateurs should have objects of art. He says: "Although these words 'Honneur et la Patrie' may sound very grand, I think that prizes in money would be viewed without disfavour by three-fourths of the exhibitors." He also wishes to see their vegetables exhibited in a better manner, and actually adds that in England we shed a charm of poetry round them by the manner in which we exhibit them; and that exhibitions of fruit trees, as at Amsterdam, and table decorations, as with us, should be encouraged. He would also desire to see the juries differently arranged, and if not paid, as with us, that, at any rate, they should be "fêted," as in Belgium; and, in summing up, adds that this would effect a triple object—maintain their importance as a society, unite on one common ground men devoted to the same

cause, and entertain amicable relations between their own countrymen and strangers.

I cannot but think that many of those who are continually depreciating our efforts on this side of the channel in the matter of horticultural exhibitions may learn a lesson from this remarkable paper, and see that the opinions are not shared by those who are well calculated to judge; and those who undertake the management of our great London exhibitions may take courage from these laudatory remarks of a competent French authority. I have long contended—and oftentimes against a strong contrary opinion—that in the matter of exhibitions, as far as the excellence of plants and flowers are concerned, we are far in advance of our neighbours. It is something not only to have this acknowledged, but to be also assured that in a matter in which they were considered ahead of us we are allowed, at any rate, not to be behind them.

DELTA.

LEAFLETS.

MR. J. B. ARMSTRONG, Botanic Garden, Christchurch, New Zealand, sends me some very interesting notes:—"We have in New Zealand many plants of chaste beauty, which would delight your lovers of Alpine plants. For many years past I have spent my spare time in studying and collecting the flora of our Southern Alps—mountains which attain an elevation of 13,000 ft., and where even in the valleys the thermometer is frequently below zero. You will readily see that such a district, and it is of great extent, must contain many plants likely to prove hardy in England; in fact, I am certain that our native sub-alpine shrubs will eventually become the common ornaments of your gardens."

For instance, we have fifty species of *Veronica*, many *Olearias* superior to the one you have (*O. Haasti*); splendid *Senecios* with leaves as fine as those of a *Rhododendron*, and many others, besides numerous beautiful herbaceous plants. Unfortunately your English cultivators have got into their heads that New Zealand is a hot country, and they not unfrequently kill our natives with too much coddling. It is rather amusing to hear of the sub-alpine Cabbage tree (*Cordylus indivisa*) being shown as it has often been in a collection of stove plants."

Mr. Armstrong also sends me a few seeds of the splendid *Myosotidium nobile*, which, he says, may not unlikely be hardy in England, as it has lately been found on the coast of the coldest portion of the colony, viz., Stewart's Island. It is a seaside plant, and is fond of damp sand, heavily manured with seaweed. It is not difficult to grow, but is a short-lived plant. In New Zealand it produces leaves measuring 18 in. across, and heads of lilac-blue flower 6 in. through. It is a gigantic Forget-me-not.

A correspondent writes:—"I have been at the Liverpool Chrysanthemum Show. The way the plants, fine in themselves, were tied out to sticks as stiff as pokers was sad to see. I had hoped all this horrible formality of training had exploded." Perhaps some good may be done by employers prohibiting this waste of labour, to produce that which is in no way beautiful, but quite harmful in its tendency. The absurd training has not even the merit of producing better flowers.

I wonder to what extent the plague of caterpillars and the swarms of moths, which have been noted everywhere this year, was brought about by the scarcity of birds. It is an undoubted fact that our usual garden birds were destroyed by thousands last winter; and this was probably the real cause of the plague of caterpillars, as their eggs were not consumed as usual by our feathered friends.

Robin Redbreast is the familiar friend of our gardeners, sitting on the potting bench at dinner time, and on the wheelbarrow whilst the digging is going forward in quest of his "grub"; but it does not do to let him spend a night in one's late Vinery this cold weather. He is very fond of Grapes, and will spoil a good many if you will allow him.

A friend of mine, who grows Auriculas largely, tells me that a pair of wrens which frequented his Auricula house during the summer, might be seen daily perching upon the edge of the pots and picking off the green fly from the under sides of the leaves. If we only knew the true use of birds to gardeners we should value their company more highly than some of us at present do.

A correspondent protests against the small plants sent out by our very best florists in execution of orders for Alpine and herbaceous plants. It is the fashion to send out a small thumb-pot with the least scrap of a plant in it. Many north-country tradesmen are now sending out good-sized plants from the open garden, and we fancy a nurseryman's business would be much more easily managed in this way than by keeping his stock in pots. As Alpine plants are becoming popular, it is worth consideration whether the ordinary plan of working the trade cannot be improved.

Referring to Gros Maroc Grape, as noticed in "Leaflets" (p. 432) Dr. Roden tells me that this Grape has been grown by him some fifteen years past, and is a great favourite of his; that it is very handsome both in bunch and berry (the latter oval in shape); that it carries a good bloom, and, as a late keeper, is worthy to associate with Alicante and Lady Downe's Seedling. It is also of good flavour and easy of culture. I note that although Mr. Rivers has it in his collection, it has for some years past been withdrawn from his fruit list, and I have often wondered why?

I hear from a gardening friend, who observes closely, though he does not write much (and consequently avoids "wobbling"), that Sutton's Late Queen Broccoli was, during the last very severe winter, the hardiest of all the Broccoli, and kept the table supplied after all others were killed, till the end of June and beginning of July. He also tells me that Telephone Pea (why not call it "Eureka," for it was discovered in Culverwell's Telegraph), after all the severe criticisms, is really quite distinct from Telegraph, and a much better Pea in every way, and should be grown as a second early.

I read in a "Society" journal that a second batch of 100 Oak trees has been sent by Mr. Parker, of Southgate Place, to a gentleman for planting on Lansdown this year, in support of his principle of cultivating gardens by electrical action, whatever mode of culture that may mean.

Mr. Sadler tells me of the great good which has been effected by the opening of the Edinburgh Garden throughout the day. The public use the garden, and seem to enjoy it to a much greater extent than before. Even when admission was not refused to anyone who rang the bell and asked for it, this slight barrier prevented people from freely entering the gardens as they do now. The work in the houses and out-of-doors is carried on without the slightest inconvenience to the men, and with much less trouble now than used to be taken in the shape of precautions as regards the few that were admitted in past days.

A *propos* of Mr. Williams' remark (p. 445) as to the state of the herbaceous ground at Kew, early in the season, viz., 'that the display of plants was meagre, the most conspicuous

feature being the display of unnecessarily large labels," I may mention that a friend of mine was walking the other day in that part, when her little girl said, "Mamma, do they bury babies here?" The mistake as to locality was certainly excusable, but the labels are not at all so bad as I have seen. In old days in the Botanic Gardens in the Regent's Park, when they had Teak labels 2 ft. long, the difference between the herbaceous department and the Marylebone Cemetery was not so very apparent. At that time Kew had adopted the little iron T label, which looks much better.

I notice men busy trying to fill up the ugly holes and ruts into which the wooden pavement in Piccadilly has lately fallen. It will not be very long before the people will find this pavement impracticable, from its very expensive nature and its want of endurance. It is, besides, the most dangerous pavement in frosty weather, and has other serious drawbacks, one of which is that it absorbs and gives off offensive matter.

So far as I know, the most perfect city street is one made of asphalt, and it would be easy to remove the dust and mud from the streets by employing water freely. Why could not the fire hose and director, numbers of which are now laid down in our City streets, be made use of early in the morning, or late in the evening for cleansing them, where asphalt is laid down, and pavements everywhere? If this were done, all danger to life and limb would be at an end.

In Paris there is a wide difference in price in the different coloured Violets. While common blue Violets, single and double, are fully as cheap as in England, the lilac varieties of the Neapolitan type are, or were early in November, very dear. The former are also offered in small bunches fit for button-holes. The latter are invariably made up into large bouquets, ranging from 4 in. to 1 ft. in diameter.

The Parisian bouquets are mostly far too large. Bunches of Roses 18 in. across in November were not only a great waste of floral beauty, but would also need a strong arm to carry them. Most of the French bouquets are also formed of one kind of flower, and very seldom indeed is more than three varieties used in the same bouquet. Occasionally Roses, Mignonette, and Pansies are used together, but not often.

A very choice All Saints' Eve bouquet was purchased in the Madeleine Flower Market for five francs. It consisted wholly of Orange blossoms, mixed and fringed as was thought with small Orange leaves. On examination it was found that each single blossom was mounted on a stem apparently of Grass or small hard Rush. No ties were used. These stems were sharp at the upper ends, and the single flowers were merely pushed on. The leaves were also found to be not Orange, but a variety of the *Solanum Capsicastrum*. These were no bad substitutes, and with daily sprinkling the bouquet kept fresh and sweet for a week. Surely it was exceptionally late or early for Orange blossoms, even in France.

The flower girls on the Boulevards of Paris—who are not numerous—have an odd way of disposing of their simple bouquets. They suddenly present themselves before ladies or gentlemen likely to buy—the English and Americans having their chief attention—making a curtsy and with a "Pardon, Madame" or "Monsieur," they insert their bouquet in dress or coat, and retreat. Making a short detour they present themselves with another bow for payment. To refuse the moderate sum demanded or return the bouquet under such circumstances would be out of the question.

THE FLOWER GARDEN.

NEW TUBEROUS-ROOTED BEGONIAS FOR 1879.

HAVING again grown for trial and comparison with older varieties all the new hybrids of these beautiful flowers that I could collect from the various Continental raisers during the cold, sunless, and most ungenial summer that has this year been vouchsafed to us, and having, notwithstanding the unfavourable season, succeeded in satisfactorily blooming twelve out of the sixteen single, and a similar number out of the twenty-one double-flowered varieties received (these latter, with some few exceptions, being much more delicate in constitution than their single-flowered brethren), some account of what opinion I came to as to the relative and respective merits of each variety may, I venture to hope, prove not altogether uninteresting to that large portion of your readers who take an interest in these most easily cultivated and continuous blooming plants, whose popularity with florists generally continues regularly and steadily to increase as they become better known and more widely and generally cultivated from year to year. To commence with the single-flowered varieties.

From M. Van Houtte, of Ghent, came six varieties, named respectively Madame Van Houtte, Comtesse de Flandre, François Crepin, J. Putzeys, J. B. Carnoy, and Th. Buchetet. Of the first named of these varieties the most that can be said is that it is the best of a very poor lot; it is of upright branching habit of growth, with medium-sized deep carmine flowers; on the whole of about second-rate excellence. The next on the list is a coarse growing variety, with big pointed leaves and light orange flowers, borne with considerable freedom on tall straight stems. F. Crepin is a straggling growing variety, with large, thin, poorly-formed rose-coloured flowers, sometimes partially semi-double. J. Putzeys is a small, orange-flowered, and comparatively quite worthless variety. J. B. Carnoy is a low growing variety, with peculiar, round-shaped, shining foliage, and rather thin medium-sized blossoms of a pleasing shade of deep rose colour. Th. Buchetet is a pale, washy-white, thin-flowered, and utterly worthless variety, quite unworthy of being named at all.

From M. Lemoine, of Nancy, came three varieties, two of them new—E. Legouvé and Ossian Bonnet and one new to me—Le Pactole. Of only the first and third of these can I say anything at present, as the second named did not develop itself sufficiently to enable me to form any opinion about it. E. Legouvé is a fine variety, with large-cupped male flowers of a good clear rose colour, and of fine substance, but, unfortunately, of somewhat hard and angular habit of growth, most difficult to propagate, a fault possessed by several of the finest varieties sent out by this raiser, especially the beautiful variety named Oriflame. Le Pactole is a free blooming variety, with large flowers of a deep canary colour inside, and a reddish buff outside; unfortunately, however, the blooms are borne on long pendulous foot-stalks, which hang about over the plant, and require to be raised with the hand to see the inside of the flower. When at Ghent I saw a yellow-flowered variety named Arsene Potier, raised by M. Bordeaux, which was entirely free from this important drawback, and therefore much to be preferred, though the individual blooms were not quite so large as those of Le Pactole.

From M. Fontaine, the raiser of the splendid variety Exposition de Sceaux, perhaps the most beautiful of all single Begonias, came only one variety named Vulcain, which is a fine, vigorous, upright growing variety, with large, bold, well-formed flowers of a light orange-red colour. Perhaps this may be considered the best of this year's single varieties.

Messrs. Thibaut & Keteleer, of Sceaux, sent only one variety, named Le Géant, an exceedingly free-blooming sort of upright growing and branching habit of growth, with large flowers of clear bright carmine, unfortunately rather deficient in substance, but on the whole well worth adding to any collection of these plants.

From M. Lequin, of Clamart, came Alexandrine Lequin, an exceedingly fine variety (sent out last year, but new to me), with immense flowers of the finest substance, closely resembling in form those of another fine variety sent out at the same time by this raiser, named rosea grandiflora, and described in my notes of last year; the colour of this variety is a clear bright salmon; it should be in every collection.

Among the double-flowered varieties, those sent out by Monsieur Boucher, of Billancourt, near Paris, deserve the first place as the most vigorous and satisfactory growers of any doubles yet sent out, being of upright and freely branching habit of growth, much resembling that of the old boliviensis; they were obtained from some chance seed obtained, without any care or fertilisation, from a slightly semi-double variety, of English origin, named Dr. Moore. They are five in number, named Louis Boucher, with light orange-scarlet

flowers fully and evenly double, centre prettily fringed; Marie Boucher, deep carmine outside, centre petals of a lighter shade; Dinah Félix, light carmine, with very fully developed duplicature, perhaps the finest of this beautiful set; Duchesse de Cambaceres, fine deep carmine and large but somewhat coarse flower, tallest and strongest grower of the lot; Clovis, much the same shade as Louis Boucher, rather larger flower, but not quite so dense a duplicature, sometimes showing a whitish centre on first opening, which disappears on the complete development of the flower. Four of these fine varieties are well and accurately figured in the coloured plate of the number of the "Révue Horticole" for August 16, 1879.

From M. G. Malet, of Plessis Piquet, came two varieties named Clemence Delahaye, a delicate and low-growing variety with very beautiful medium-sized rosette-shaped blooms of a delicate rosy blush colour (this variety seems better adapted for pot culture in conservatory), and Gaston Malet, a beautiful low-growing variety producing deep rose-coloured and fully double male blooms on foot-stalks well raised above the foliage.

From M. Victor Lemoine came no less than eleven varieties, but of these, from one cause or another, principally the cold and unfavourable season, only three bloomed for me; of the others I hope to give some account next year. These were Beelzebuth, a low-growing and somewhat delicate habited variety, producing flowers freely on weak pendulous foot-stalks of a light scarlet, the males of which are fully and evenly double; Rosæflora plena, a strong-growing free-blooming variety, with light rose-coloured flowers, the centres of the males of which are fully double, but not well filled up to outer or guard petals; and Viscountess Doneraile, a rather vigorous and strong-growing variety for a double, producing blooms of a pleasing shade of deep rose colour, the males of which are somewhat more than semi-double. This variety is, however, likely to be valuable as a free and continuous bloomer in the late season, and may be more double also in a more favourable season.

M. Van Houtte sent three double-flowered varieties, only two of which, however, bloomed—Comte de Flandre and Rachel, and the latter alone abundantly and well; the first-named, as far as I could judge from a single flower, is of a pleasing shade of light orange, and fairly double. Rachel is fine, strong grower and free bloomer, and is interesting from being the first double yellow that has been obtained. Its colour is pale canary yellow, and the structure of its male or double flowers is quite unique and most peculiar, and unlike that of any other double variety known to me. Although very double they cannot be called a good or even double from a florist flower point of view. It will, I think, be quite superseded by a fine double yellow which has been obtained by Mr. V. Lemoine, which has not yet been named. Some excellent varieties with single flowers, and a few also with double (one of which has been named Althæflora) have also been obtained after years of careful crossing and patient fertilisation by M. John Laing, of Forest Hill, who has now by far the finest and most varied collection of these plants in England. Among these is one very fine white named, I believe, Reine Blanche; and J. H. Ferrand, H. J. Laing, E. H. Woodall, and a few others, not yet sent out, are of good form and substance.

Having this autumn made a short tour on the Continent specially for the purpose of visiting the principal raisers of tuberous Begonias, and having visited the gardens of Messrs. Van Houtte at Ghent, Lemoine at Nancy, Thibaut & Keteleer at Sceaux, G. Malet at Plessis Piquet, and E. Lequin at Clamart, I came to the conclusion from what I saw there that, in the opinion of these growers, the single-flowered Begonia has reached its highest point of development, and that we must not look for much further improvement therein. Nearly all of them are now devoting their attention to the obtaining and improvement of the double-flowered kinds, and some extremely fine flowers have been obtained by nearly all of them, but especially by the two last named, which will not be sufficiently propagated to distribute till 1881. I also noted at the Sceaux garden the first single-flowered Begonia with two distinct colours, the outer half of the petals being deep nankin and the centre pure white. At Versailles I also saw a variety named Gloire de Versailles, said to reproduce itself quite true from seed, and resembling an improved form of B. Veitchii.

W. E. GUMBLETON.

Crassula alpestris.—The annexed engraving represents a pretty rock plant which has lately come into notice in this country through the instrumentality of Herr Max Leichtlin, of Baden-Baden, who sent it to Kew a year or two ago under the name of *Sedum alpestris*. It is a neat-habited perennial, with creeping and slightly branched stems, which are of a bright reddish tint. The flowers, as may be seen, are borne in terminal clusters; they are pure white, of wax-like substance, and have orange-red-tipped stamens, altogether producing a pretty effect. Though it is a native of the Cape of Good Hope, from whence we have so many tender species of *Crassula*, it is quite hardy enough to live unprotected in this climate, as was

proved in the Kew collection during the last severe winter. It thrives well in a thoroughly drained and open position on rock-work, and continues to flower throughout the summer. Our drawing was prepared from a plant which flowered on the rock-work at the Royal Horticultural Society's Gardens at Chiswick during the present year.—W. G.

GARDEN NOTES FROM NORTH DURHAM.

THE fine autumn weather which we have had has tended greatly to mature fruit which at one time was looked upon as irretrievably lost. Of course, none of the fruit in this district attained anything like its normal size, the Hesse Pears, for instance, being very little larger than good-sized Walnuts; still they became ripe. Apples never attained much size or colour, and in flavour they were also very inferior, while, as regards keeping qualities, I am afraid they will be deficient. Peaches on walls did not ripen, and they were inferior as regards size. Perhaps nothing did so well in this neighbourhood as Victoria Plums, which were a good crop and of average quality. Small fruits were an excessive crop, but very deficient in flavour, and housekeepers who do not study the "why and the wherefore" will have much of their jam fermenting before Christmas. It was almost impossible to get the fruit gathered dry, and consequently much of it will contain a quantity of water, even after boiling. If the prejudice of cooks and housekeepers against preserving wet fruit could be removed, growers would be spared much anxiety and trouble. Fruit gathered when literally soaking with rain only requires to be boiled twenty minutes or half-an-hour longer than the regulation time, and it will then keep just as well as if it had been gathered on the hottest day imaginable, and — other things

being equal—as well flavoured; but in a season like the present, no amount of artificial treatment could make good flavoured fruit. A great amount of uneasiness was at one time felt regarding our fruit prospects next year, the prevailing opinion being that the gross growth of the present season would not be sufficiently matured. With the exception of unfavourable situations, where growth is made late in the year, fair maturation has taken place, and we have not much to fear from that source as to our fruit crop in 1880.

After the fruit crop, perhaps nothing was so disappointing as the flower garden, bedding plants of the more fashionable kinds being a marked failure. But where "carpet bedding" had been carefully managed it was decidedly superior to beds filled with flowers, where the Pelargoniums assumed alarming proportions, without ever showing any attempt to produce a single blossom. Verbenas did very badly, and Lobelias of the speciosa section sprawled all over the place. Perhaps the most satisfactory bedding plant of the year was the Calceolaria, among which that excellent old variety Aurea floribunda was the best. Judging from the specimens which I saw at local exhibitions, Asters had done remarkably well; I never saw finer shown. Speaking of the show reminds me that Dahlias were a comparative failure, although late in the year we saw some fine displays. The damp, dripping season, although it kept the Rose probably a month late, yet appeared to suit it wonderfully well, for we never saw finer Roses than those produced this year.

Amongst vegetables, although the season was sadly out of joint as regards dates, results were obtained which compared favourably with those of previous years. All the Brassica tribe grew well, and I never saw finer crops of late Cauliflowers than those of this year. I fear, however, that an excessively severe winter will be hard on the gross, succulent growth of Broccoli, Celery, and winter produce generally. A good plan is to give Broccoli a lift with a fork, which gives it a check; and Celery will need some protecting material kept in readiness for it. Perhaps early Peas were the greatest failure, generally speaking; the cold, ungenial weather in the spring retarded them so effectually that they never recovered. Mid-season crops did fairly well, and late crops were excellent. Of all Peas commend me to that excellent, early, midseason, and late sort called Ne Plus Ultra.

Indoors, early fruit crops were for a long time in the spring at a standstill for want of sunshine, but they eventually got over it, and were, to say the least, passable. Midseason Grapes were never finer, and Vines never made more growth, thus showing plainly what insatiable appetites they have for water and gross feeding. The bloom upon all late Grapes is this year thicker than is commonly the case, a fact which shows that, compared with the burning suns of last year, this has been more conducive to the production of fine fruit.

Peaches and Nectarines did well under glass, and grew to a good size. The cold weather in the early part of the year kept bees and other insects from fertilising the early blossoms; but where the trellises were shaken two or three times daily when the trees were in bloom good crops invariably followed.

On the whole, the year cannot be said to have been so unproductive as some would have us believe. Taking things generally, we may be said to have at least had average crops. We have had plenty of fruit (such as it was), good supplies of first-rate vegetables, and a

fine autumn, which has tended to make up many of the deficiencies of the year.

TYNEDALE.



A New Hardy Succulent (*Crassula alpestris*). Flowers white (natural size).

Dactylis elegantissima aurea.—This is a very pretty golden variegated Grass, having a neat compact habit of growth, and producing an excellent effect when a few good specimens of it are massed together. It would form a useful subject for dotting here and there in front of low evergreens, to the sombre hues of which its bright variegation would afford a pleasing contrast.—J. C. B.

The Best White Hardy Phlox.—Georges Sand is the finest white variety of Phlox with which I am acquainted. Its flower-trusses are very large, and the individual flowers very fine and of good substance. The habit, too, is all that can be desired. It resembles, but is in every way superior to, that fine kind White Queen, and should certainly be included in every collection of this showy family of hardy flowering plants.—J. CORNHILL.

Roses on Briers.—Whatever may be said for or against Roses on Briers, it is obvious that we cannot do without them, as the budding of choice varieties is still by far the most rapid and surest mode of increase. Many budded Roses only live a year or two, one great cause of the mortality being doubtless the transplanting of budded Briers so soon after the buds have taken. We have lately been making large plantations of Briers in beds and borders, to be budded

in their permanent flowering quarters. Thus one great cause of mortality will probably be cut off.—D. T. FISH.

NOTES OF THE WEEK.

The Heart-leaved Manettia (*M. cordifolia*).—This is one of those fine old-fashioned plants that have been displaced by new comers, though as a showy winter-flowering stove climber it would be difficult to name a more desirable one to be grown by every one. In the Palm House at Kew, twining round a pillar, it will shortly be a very attractive object. Its orange-scarlet trumpet-shaped flowers are $1\frac{1}{2}$ in. long, and are borne in long pendulous racemes from the axils of the heart-shaped leaves, and hang in graceful profusion. It is a Brazilian plant, and has long been an occupant of stoves, though but seldom seen, but, as before observed, it will well repay culture.

New Double Primulas at Fulham.—The beautiful double varieties of Chinese Primulas raised by Mr. Gilbert, of Burghley, and exhibited during the last and present seasons at South Kensington, are now in perfection in Messrs. Osborn & Sons' nurseries, where several hundred plants of them are in flower. The effect which they produce thus massed is very striking, and they cannot fail to become even more popular than the single flowering kinds, provided they prove equally amenable to culture and propagation. The largest specimens will be in full bloom in about six or eight weeks hence.

The Long-flowered Leianthus (*L. longiflorus*).—From the Gentian family we derive some of our most beautiful garden flowers, and the species under notice, which is allied to the better known and lovely kinds of *Lisianthus*, may certainly be classed among them. The bright yellow pendent flowers have each a long narrow tube and five spreading segments, with protruding stamens of the same colour. The leaves are oval and arranged in opposite pairs, and the flowers terminate the branches. It is a native of Jamaica, whence it has been received at Kew, where it is now in flower in the T range.

Orchids at the York Nurseries.—In the extensive collection of these plants in the York Nurseries, the most noteworthy at present are some splendid masses of *Lælia anceps*, of which several varieties may be traced. *L. albidia*, another beautiful kind in flower, is not so generally grown as the preceding, but it is, nevertheless, a most desirable kind, as its pretty white waxy blossoms are produced so freely and last such a long while in perfection. *Cattleya maxima*, a somewhat scarce species, is likewise finely in flower, and of this, also, there seems to be several forms, varying in intensity of colour and size of blossoms.

The Narrow-Leaved Speedwell (*Veronica angustifolia*).—This elegant New Zealand shrub is a capital plant for decorative purposes during winter, and as such it is extensively grown by Messrs. Lee & Son, Hammersmith. Its leaves are much narrower than those of the Willow-leaved kind (*V. salicifolia*), and the pretty racemes of pale, mauve tinted blossoms are borne quite erect so as to be distinctly seen above the foliage. It is very easy to grow, is tolerably hardy, and thrives well in any ordinary greenhouse. In its native habitat it attains a height of from 4 ft. to 6 ft., but smaller plants of it have a more elegant appearance.

Ionopsis paniculata.—This is one of the most charming of the smaller growing Orchids, and is finely in flower in the Kew collection. It is one of those kinds with none or but very small pseudo-bulbs, and with thick leathery leaves about 6 in. long. The flower-spikes are produced from the axils of the leaves, and are from 1 ft. to $1\frac{1}{2}$ ft. long, much branched, and every branchlet bears a pretty small bluish-white flower, of which the lip is broadly heart-shaped and delicately pencilled with a purple tint. It is a native of Tropical America but is by no means a novelty, as it has been long introduced. It is strictly an epiphytal kind, and succeeds well on a suspended block. Another plant in the same house bearing the name of *I. utricularioides*, is apparently the same species.

Pitcher Plants at Chelsea.—The houses devoted to the extensive collection of Nephenthæ now constitute one of the most interesting features in Messrs. Veitch & Sons' nursery, the majority of the plants being laden with fully developed and, for the most part, finely coloured pitchers. It is interesting to observe the varied forms, sizes, and manner of markings of the pitchers belonging to the different species and varieties. Though there are numerous novelties amongst them, such kinds as the old and well-known *N. Rafflesiana* still hold their own, though it must be admitted that most of the newer sorts have much to recommend them. Such rarities, also, as *N. Veitchii* or *lanata* may be seen with pitchers, though there are several other scarce species which have not developed any this season.

Of the newer kinds the most noteworthy are *N. Stewarti*, a fine hybrid, the result of a cross between *N. phyllanthophora* and *N. Hookeriana*. Its pitchers are very elegant and deep green in colour, spotted with crimson. *N. Kennediana* is another novelty from North Australia, of rather dwarf habit; it has elongated pitchers that vary in colour from a reddish-crimson without to a light yellowish-green stained with red and mottled with dark crimson within. Then there is the exquisite little *N. Sedeni*, which is such a favourite with everyone, though not very new, and certainly few can excel it in the abundant production and high colour of its somewhat small pitchers.

The Cypress-like Dacrydium (*D. cupressinum*).—A small plant of this most elegant Conifer forms one of the most graceful of objects for decorative purposes. The pendulous, tail-like branchlets covered with yellowish-green scale-like leaves have a fine effect when associated with other plants. Though in its native country (New Zealand) it attains a height of 200 ft., it is of very slow growth, and remains in a miniature state for years. It is grown somewhat largely in the Fulham Nurseries in pots for decorative purposes.

Liparis longipes.—Amongst the numerous kinds of Orchids that are remarkable for the elegant appearance rather than the showiness of their flowers, this East Indian species must be regarded as one of the most attractive. The bulbs are conical and bear a pair of leathery leaves from between which proceeds a raceme a foot or more in length. It is slender and droops gracefully, and is covered throughout its entire length with hundreds of tiny singularly shaped yellow and green flowers, which emit a delicious fragrance. *L. spatulata* is another species much in the same way though not so desirable, as the flowers are produced in fewer numbers.

Cycads in Fruit.—These noble plants, beautiful as they are when covered with foliage only, are very interesting objects when in a fruiting stage. In Mr. Bull's nursery, at Chelsea, the rare *Encephalartos Vroomi*, one of the noblest of the species, is developing a huge cone, which is enveloped in a wool-like fulvous material. The new South African *E. Friderici-Guilielmi* has also for some time been in this condition, the cones of which, like the last, are covered with brownish, woolly matter.

Standard Chrysanthemums at Penrhos.—At Penrhos, Holyhead, Blush Queen of England may now be seen bearing thirty blooms, each averaging from 12 in. to 18 in. in circumference; Golden Queen of England, with thirty blooms, each averaging from 12 in. to 17 in. in circumference; also a lovely display of Mr. George Glenny and Mrs. George Rundle, with 100 blooms each; Lord Derby, Prince Alfred, Jardin des Plantes, and Bronze Jardin des Plantes are likewise bearing fine close blooms, each above the average size. There are also most of the leading varieties of Japanese kinds and Pompones, as well as late varieties, all flowering in 8-in. pots.—F. W. E.

The Century Plant (*Agave americana*).—A moderate sized specimen of this plant is now in flower in the Temperate House at Kew. The flower-stem, which rises from 10 ft. to 15 ft. in height, is quite erect, and bears a multitude of horizontal branches clothed with dense clusters of yellowish-green flowers with protruding yellow stamens. It will be for some weeks an object of interest, as the flowers do not expand simultaneously, but open in quick succession. It is interesting to observe how the huge flower stem is developed at the expense of the thick fleshy leaves; which are already much shrivelled and will eventually perish.

Senecio speciosus.—In the early part of the past summer we had occasion to allude to this plant which was then in flower in Mr. Bull's nursery at Chelsea, under the name of *S. concolor*. It is now considered to be identical with *S. speciosus*, a native of South Africa. Whatever its correct name may be, it is a very desirable plant for greenhouse decoration on account of its free-flowering habit, pretty tint of its flowers, and the remarkable length of time during which it continues in flower, for it has produced blossoms continuously from the beginning of summer until the present time.

Orchids in Flower in America.—In large collections of Orchids such as there is in Mr. Corning's garden at Tawassagunshsee, Albany, N.Y., there is, at all seasons of the year, species in flower which for variety and beauty are worthy of a passing notice. There is at present in flower here such rarities as *Angræcum Chailleanum*, a very distinct and rare species; *Saccolabium bigibbum*, a very pretty, delicate species, but unfortunately the flower-spikes are too short to show the flowers off to advantage; *Cypripedium Chantini*, a kind much resembling its parent *C. insigne*, but with more white and brighter flowers, approaching in that respect *C. Maulei*; the white variety of *Lycaste Skinneri*, a superb kind, but unfortunately rather scarce; *Cattleya Dominiana* alba with eighteen flowers, forming a pleasing contrast to the rich colouring of the autumn variety, *C. labiata*. In the same collection are also *Cattleya Eldo-*

rado, a free-flowering species possessing an almost endless variety of colour, from nearly pure white to the darkest rose, with and without the purple band to the lip, and *Vanda cœrulea*, always welcome for its distinct and rare colouring. *Renanthera matutina*, noticed last June, is still in flower; this lasting quality, combined with its singular form and distinct colour, renders it at once a valuable plant; other species in flower of more or less beauty are *Cattleya marginata* (true), *Dendrobium bigibbum*, *Epidendrum phœniceum*, *Wallisi*, and *dichromum*; *Cypripedium Ashburtoniæ* and *Harrisi-anum*; *Odontoglossum tripudians* and *croci-dipterum*; *Oncidium Rogersi* (true), *Lælia autumnalis*, *anceps*, and *Perrini*; *Cœlogyne Cummingi*, *Masdevallia towarensis* and *Barleana*; *Phalanopsis Lowi*, and the before mentioned *P. violacea* and *P. intermedia* Portei.—F. GOLDRING.

Holly Berries.—Christmas will not suffer for lack of these this season. Seldom has there been such a full crop, and the hedges-rows are richly coralled over with the heaviest crop of Haws that we have had for years.—D. T. FISH.

Cypripedium insigne and insigne Maulei.—I send you flowers of these measuring nearly 5 in. across. Most good cultivators are familiar with both varieties, but *C. insigne* is not unfrequently confounded with *C. insigne Maulei*, although the two are quite distinct; our variety of the former has been taken for the latter more than once. The white of the top lobe of *C. insigne Maulei* is as pure as the *Eucharis amazonica*, and covers more than two-thirds of the surface, rendering the flowers very conspicuous. I look upon it as one of the very best of its class, and a first-rate showy Orchid for general culture.—J. S. W.

The Effect of Frost on Chrysanthemums.—About forty of these plants were placed two months ago near a wall with an aspect nearly south, in nautical language south by east. About the end of October half of them were transferred to a cool greenhouse, the remainder being moved up to the wall where their pots were half buried in dry leaves. This lot included *Eve*, *Progne*, *Sanguineum*, *Mrs. Dixon*, *Mrs. George Rundle*, *Julie Lagravère*, *Chevalier Domage*, *Lady Harding*, *Prince of Wales*, *Dr. and Mrs. Sharpe*, *General Slade*, and *Virginalæ*. Here they remained with no other protection than what the wall afforded till Saturday afternoon, when they were transferred to warmer quarters. *Eve* has suffered, but will probably recover sufficiently to produce flowers; *Progne* will scarcely do that, for its foliage seems hopelessly injured, and the ends of most of the shoots are bent and withered. Of the others, some are in bloom, and all look well. For the last fortnight the sun's rays, owing to the proximity of some buildings, have only reached within 4 ft. or thereabouts of the ground level, and the plants were in shadow the whole of the day. Last week a thermometer (Fahr.), in a very exposed position, registered 8°, 10°, 12°, and 13° of frost. In the open border this morning (Nov. 24) I found *White Venus* and *Chevalier Domage* severely injured by the late frosts and snow, but many of the other sorts, should there be a return of mild weather, will probably continue to bloom.—B. S., Rutland.

National Rose Society.—At a meeting of the executive committee of this society, held on Tuesday last, it was announced that the following special prizes would be competed for at the exhibition to be held at the Crystal Palace, on Saturday, July 3, 1880:—1, Silver challenge cup (general competition), given by Messrs. Cranston & Co., Hereford. 2, Silver cup, value ten guineas, given by Mr. John Hollingworth, Maidstone, for the best box in Class I, seventy-two varieties (nurserymen). 3, Silver cup, value six guineas, by Mr. Thomas Hollingworth, Maidstone, for the best eighteen Teas (nurserymen). 4, Silver cup, value ten guineas, by Mr. R. N. G. Baker, Heavitree, Exeter, for the best eighteen Roses (nine Hybrid Perpetuals and nine Teas), amateurs. 5, Silver cup, value ten guineas, for the best stand of Cheshunt-raised Roses, by Messrs. Paul & Sons, Cheshunt. 6, Piece of plate, value three guineas, for the best stand in Class 14 (suburban Roses) by Mr. Edward Mawley, Hon. Sec. 7, £5 for the best seedling Rose not yet in commerce, by Mr. G. P. Hawtrey, Langley, Slough. 8, Silver-gilt medal, by the proprietors of the "Journal des Roses" for the best twenty-four Roses, three of each, one fully expanded, one half open, and one in bud.

Cardinal-flowers in Autumn.—Mr. Burbidge writes to us as follows:—"November 25th. *Lobelia ignea*, the red-foliaged variety, and the green-leaved *L. splendens*, are even yet fresh and lovely."

The Winter has come upon us earlier than usual, and it also threatens to prove one of unusual severity. A good many trees and shrubs have had their green leaves frozen on rather than ripened off, and the result will, it is to be feared, prove rather unfavourable to a rich harvest of flowers and fruit next year.

CORRESPONDENTS will greatly oblige by sending us new or rare plants for illustration.

Rockeries in Winter.—The winter months are not very cheering for those who find gardening their chief delight. A rockery may, however, become a most attractive object to all beholders even in a deep snow, provided the outline is irregular and it is replete with chinks, crannies, and small caves. These require unflinching attention so as to keep them just sufficiently open, enabling them to show to the best advantage, or the Thymes, Aubrietias, and other small plants which revel on the verge of them will interfere with the outline and soon conceal the impenetrable shadows which otherwise would be one of the chief beauties of such a construction.—CHAS. ISHAM.

Choretis glauca.—This Mexican bulbous plant is now in bloom in the Botanical Gardens, Birmingham. The specimen in question is producing a fine spike of pure white fragrant flowers, eleven in number. The leaves are large and glaucous, and the plant is altogether very attractive.—J. S. S.

COUNTRY SEATS AND GARDENS OF GREAT BRITAIN.

LONGLEAT.

LONGLEAT, one of the most beautiful houses in England, is fortunate in having its surroundings also beautiful. I have chosen the side where uninterrupted lawn reaches the house—where there are groups of great trees on a carpet of Grass. Situated in the valley there is no need for a geometrical garden here, and happily there is none to interfere with the view of the charming and airy-looking house and its pleasant surroundings, so far as this side is concerned. The house itself, too, with its abundance of light and quiet grace, what a lesson to the modern architect! who gets his effect by breaking the sky line with all sorts of useless spires and pinacles, and dreary slopes of slate with small poking windows. Here one may walk on the roof and enjoy the beautiful landscape around, and the effect is very much better than where so much is wasted to break the sky line with objects always without utility, and too frequently without beauty. However, my theme is rather away from the fine old house to the open and rolling park around, with its noble and picturesque group of Silver Firs, and, still better, those masses and groves of native hardy summer-leaving trees, so much better fitted for park scenery than the tender exotic evergreens that are now so often planted.

Neglected in many country seats, the forest department is exceedingly well done at Longleat, and is, indeed, so beautiful that it commands our first attention. The long and open drives, freely adorned with *Rhododendrons* and flowering trees, are really, in early summer, gardens of the most delightful type. There is one valley where certain huge trees of the Bird Cherry, seen in flower against masses of the Scotch and other Firs around, form a picture such as one rarely sees even in the best managed parks and woods of England. In many places the forester's duties are more closely confined to the many operations of good culture and attention to individual trees, but here it wisely extends to the nobler function of treating the woods and plantations in relation to picturesque effect, and to opening up beautiful views, an object so often neglected; and this seems to us to be an essential function of the true forester or planter. The tree, and grove, and wood—the elements which make the best parts of our country so beautiful, may, without vigorous and tasteful control, be the very cause of blotting out nine-tenths of the landscape beauty of a country seat. Many can sympathise with the love for trees, and especially old trees, which occupies itself mainly with preserving them; but it is rare that we find the still higher quality, which seeks to show them in all their beauty, adding to, and not limiting and blotting out, the landscape, and which to that end does not hesitate to sacrifice, if need be, many trees.

While there is no absence of Conifers, the common fashion of having a Pinetum near the house is not adopted here, and I think with good reason. The great popularity of Conifers during the past generation or so has led to some serious errors in landscape gardening, and to a good deal of wasted effort, for Pines are naturally trees that love the hills. They usually grow under certain well-defined conditions. While they succeed for a time in the rich little beds of soil placed under them by careful gardeners in lowland pleasure-grounds, they do not last very long when they get through that, and they as often perish in the lowland garden from cold as from drought. Now small gardens may, and are obliged, every day to make the most of one spot; but in large country seats, to make the Pinetum near the house and neglect the more favourable circumstances that may be offered by the hilly slopes, or other situations around, is a great mistake. Apart from errors as to situation, the planting of Conifers near houses often leads to very great mistakes in garden design. Thus, for example, the various avenues of young Conifers at Madresfield Court very much cut up and limit the views in an important part of that fine place. So again at Woburn; an avenue of sickly Araucarias is drawn across one of the most important parts of the pleasure-ground. Apart from the question of design, there is also that of planting Conifers of doubtful hardiness as avenues. At Newstead, for instance, an avenue of Wellingtonias is by no means likely to confer much beauty or dignity on the place. No matter how wisely designed or much needed the avenue, it is almost childish to plant it with trees not of absolute proved hardiness, like our Oaks and Birches. At Longleat the Pine plantations are very well managed—as a rule quite away from the house in situations more fitted for them. Groups of all the newer Conifers are planted in well chosen sites; in some cases twenty to thirty different varieties in a group; other groups are composed of distinct kinds. Single specimens are sparingly planted, and anything like “cemetery” dotting is avoided. Bold, natural-looking groups and masses are obtained with shrubs and other flowering plants in the foreground. The age of most of the Fir woods is from seventy to eighty years. There is a beautiful drive through these Fir woods to the lake called Sheerwater, a well-formed piece of water of 26 acres, with high wooded slopes near. The screen round this lake was formerly a thick mass of common Elder; it was cut down about eleven years ago, and replanted with a great variety of ornamental trees and shrubs and many vigorous herbaceous plants. All the year round it is interesting and beautiful.

The Park contains from 700 to 800 acres, and was remodelled and planted by “Capability Brown” about the year 1754. The masses and groups of trees are well arranged and disposed throughout the beautifully undulating surface. From the high lying ground the scenery is very beautiful, especially from the spot called “Heaven’s Gate,” an uninterrupted view of the greater portion of the park, the mansion, and the distant country across the Mendip Hills and Landsdown, beyond Bath, as far as the eye can reach, being obtained. The noble avenue, which is one of the features of the park, was cut into clumps by Brown; the Marquis of Bath has had it filled up, and it is now in its original form. In the old time the park was full of straight lines and avenues; Brown transformed them from stiffness to natural landscape. The woodlands extend to upwards of 4,000 acres, of which nearly 2,000 are Oak coppice of various stages of growth, from 100 to 250 years standing, all in a healthy and thriving state, having been carefully thinned and replanted where the crop was becoming thin. The Fir and ornamental

woods contain about 1,500 acres. Numerous drives and rides intersect them; the Grass sides and slopes are planted with various flowering ornamental trees and shrubs. Groups of Pampas Grass and Tritomas are at this season effective. Many deciduous trees are annually planted in the park (Conifers are not allowed), and thus the original masses and groups are strengthened and maintained; dotting about trees is avoided, the object being to show as much broad Grass as possible.

Nothing could be more admirable than the management of the park itself and the plantations around. Larch is the only tree used as a nurse for hard-wooded trees; it does not take up so much room as the Firs, and allows a freer circulation of air. If shelter is required a group of Pine is planted on the most exposed side, taking the Austrian, Corsican, and Scotch Pines as the best and hardiest. If game covert be required, groups of Silver or Spruce Firs, nursed by Larches, answer the purpose better than indiscriminate planting. The hard-wooded trees are planted each by themselves in distinct irregular groups and groves, varying according to the nature of the soil and exposure. The old-fashioned plan of planting indiscriminately probably a dozen or a score of different sorts of trees over an acre of ground, regardless of soil or situation suited to the different trees, cannot be too strongly deprecated. In disposing of the different sorts of hardwood, masses of Beech and Sycamore are planted on poor land, and on exposed sites; next to these Wych Elm and Sweet Chestnut; and on the best land and most sheltered situations Lime, Oak, and Ash. For the sake of ornamental and landscape effect, purple Beech is introduced in clumps amongst the common Beech, the Norway and red Maple amongst the Sycamores and the Sweet Chestnuts; and groups of the white and Lombardy Poplars and American Scarlet Oak amongst the Oak and Ash. The system adopted to ensure almost certain success in planting operations is to buy two or three-year-old plants from the nurseries and grow them on in the private nursery, shifting them every two years until they are large enough to plant out. The Larches that were planted out last season averaged about 5 ft. high, with the stems nearly as stout as walking sticks, and fibrous roots like those of pot plants. The hardwoods averaged about 7 ft. high, with clean stems and good leaders, having all undergone nursery pruning, and none of them having stood longer than two years without moving. The young park trees had stout stems 3 in. or 4 in. through, with well balanced heads and roots a mass of fibres like door-mats. They are lifted one day and planted the next, the roots never being allowed to get dry.

The remarkable trees in the Pleasure Grounds are

Salisburia adiantifolia, 65 ft. high, 5 ft. 10 in. at 5 ft. up; contents 40 ft. A fine specimen.

Tulip tree, several stately specimens, the largest 98 ft. high, 11 ft. at 5 ft. up; contents 210 ft.

Swamp Cypress, 64 ft. high, 9 ft. 4 in. at 5 ft. up; contents 55 ft.

Redwood, 65 ft. high, 8 ft. at 5 ft. up; contents 75 ft.

Menzies Spruce, 59 ft. high, 3 ft. 10 in. at 5 ft. up.

Dacrydium Franklii, 31 ft. high.

Cupressus macrocarpa, 48 ft. high.

Araucaria Cunninghami, 39 ft. high.

The trees in the “Grove” at Longleat consist of Oak, Elm, Ash, Lime, Beech, Sweet Chestnut, Abele Poplar, and Silver Fir. Taken as a whole, these are probably the finest grown collection in the country. The largest specimens measure—

Oak, girth at 1 ft. up 33 ft., 5 ft. up 23 ft.; the butt contains 750 ft. of timber, the top over 200 ft. of timber.

Abele Poplar, 120 ft. high, 14 ft. 4 in. at 5 ft. up; 460 ft. of timber. 60 ft. run of stem without a branch.

Silver Fir, 138 ft. high, 15 ft. 2 in. at 5 ft. up.

Yew, 55 ft. high, 7 ft. 11 in. at 5 ft. up.

Elm, 125 ft. high, 25 ft. 2 in. at 5 ft. up; 450 ft. of timber.

Lime, 130 ft. high, 15 ft. 1 in. at 5 ft. up; 250 ft. of timber.

Yew tree on Temple Farm, adjoining the Park—height 50 ft., girth at base 33 ft. 7 in., 4 ft. up 24 ft. 9 in., smallest girth, 24 ft. 5 in. This is a sound healthy tree, circumference of branches, 168 ft.

Wherever extensive forest and ornamental planting is carried on a home nursery is almost necessary. For the vast parks of London, with their many wants, with vegetation often submitted to conditions that cause early death of the plants or trees—so behind-hand are the arrangements that there is no public nursery for the supply of these places, and the public have to get what they want in the most expen-

importance to the place, but also to the country surrounding it in making known new varieties of trees and shrubs. The nursery is on a somewhat steep slope, rather exposed, but very neatly fenced, and in perfect order. When its contents are gradually transferred to the park it will be second to none in its collections of trees, whether for profit or ornament. The young plantations cover about 650 acres, mostly planted with suitable hardwoods, according to the soil and filled up with Larch as nurses. The age of the various plantations range from one year old to fifty years. The greater portion, however, has been planted within ten or twelve years. More



Longleat. (Engraved from a sketch by Alfred Parsons.)

sive way. Although the want is much less felt in a private place, a nursery is, as has been stated, indispensable where there is the slightest attempt at the proper management of the planting department. At Longleat there is an excellent nursery not always filled with well-known plants which are to be obtained in ordinary nurseries, and perhaps grown cheaper than they could be in such a place, but well stocked with kinds by no means easy to obtain. Better still, it is an experimental nursery in the sense of containing a great many new or little known species, which are here treated as regards their hardiness and adaptability to the climate. I saw not a few kinds here for the first time. In this respect such a department intelligently arranged may not only be of great

plantations are in progress; a succession of young timber is thus ensured for the next generation.

Longleat is particularly interesting to me from being one of the first places in which the idea of the wild garden was practically carried out by the forester, Mr. Berry. With such a fine variety of surface and soil the place naturally offers numerous positions in which the plants of other countries as cold or colder than our own could be naturalised, or so planted that they would increase and take care of themselves in the woods. A forester's duties and opportunities are generally such as makes it extremely difficult for him to carry out such an idea. To know the plants even that are likely to succeed is, in itself, a species

of knowledge which every planter does not possess; however, the idea was clearly understood here, and carried out fairly well, so far as possible in the face of rabbits, which are the great destroyers of almost all flowering ground vegetation such as one would like to encourage in this way. In such a place as Longleat wild gardening cannot and should not be carried out in a small way. To get the necessary quantities of subjects necessitated a little nursery in which a sufficient number could be raised of the more vigorous perennials, bulbs, and climbers. If this new idea in gardening be carried out on the old dotting principle of the herbaceous border, its great value and its charming effects cannot be realised. To do it rightly we must group and mass as Nature does. Though we may enjoy a single flower or tuft here and there, the true way is natural fringes and masses of plants, one or two species prevailing in a given spot, so that way we may secure several important ends—different effects in different places; a variety as we walk along: better chances of meeting the wants of a plant inasmuch as dealing with a group, or mass, or carpet, we can best observe the plants, and easily see the result of our judgment in putting them in any soil or place. There-

fore, although the quantity of vigorous hardy flowers essential for making good effects in a place of this size have not yet been planted out, some very charming effects have been obtained. Views of them have been published from time to time in *THE GARDEN*, engraved from the sketches of Mr. Alfred Parsons. Among the features that Mr. Berry is working to introduce are vigorous hardy exotic creepers on old and inferior trees, Thorn, and other bushes of little value. Many are already planted, but will be some time before they show their full beauty—among them Japanese and other Honey-suckles, Virginian Creepers, Clematis, Wistarias, and

others. A part of the arboretum is more particularly devoted to this kind of decoration, and will eventually form a very wild wood and wild garden, where the Poet's Narcissus may be found among Sweet Briers, Lilacs, and many kinds of fragrant-flowering shrubs and vigorous perennials. While carrying out the scheme of wild gardening, pure and simple, that is to say, the naturalisation of foreign hardy plants, opportunity has been taken to establish beautiful native kinds where they do not happen to be present in sufficient abundance. Thus the Lily of the Valley has been brought in quantities and planted in wide-spreading colonies along the drives; and so with the Meadow Saffron and the Snowflakes and Daffodils. To group and scatter these in a natural and easy way has required considerable care, the tendency of the men being almost invariably, and in spite of themselves, almost to plant in stiff and set or too regular masses.

As to the gardens proper they have been left to the end, owing to the unusual charms of the larger garden of the woods and drives. The kitchen garden seems somewhat unfortunate as to soil and situation: it contains a Vinery of large dimensions and very well constructed, but the houses are mostly old. Here there is a peculiar and admirable culture of the Tea Rose on the northern and shady walls of

the various houses—beds raised a little above the surface—preserving the roots from the bad effects of a cold, wet soil. The results are remarkable, both as to the free and healthy appearance of the plants and the abundance of good bloom. Hardy flowers have been freely introduced once more into the flower garden, from which, as in many other places, they had long been wrongfully divorced. Here also, in the pleasure grounds, free-flowering hardy exotic plants have been allowed to spread about in a natural and beautiful manner. Of some of these engravings have been published in *THE GARDEN*, showing large spreading and perfectly natural looking groups of Summer Snowflake, Flame-flowers, and Day Lily, the last growing beside the lake as free as any water-side weed.

Longleat House was built by an Italian architect about the end of the 16th or beginning of the 17th century, and is a remarkably fine example of that transition period of architecture between the Tudor and the Renaissance, which is now called Jacobean; the large and numerous mullioned windows are Elizabethan in character, while the pillars, statues, and ornaments are in the pseudo-classical style prevalent in Italy

at that date. The effect of the building, simple in form, but with all the richness of detail which the architect brought from his native country, is that of a thoroughly English house, an interesting example of the way in which a great artist adapts his design to the purpose for which it is intended. The whole has acquired by age a fine grey colour, varied by exposure to weather and by those beautiful yellow and grey Lichens which give such a charm to any old stone-work which has escaped the ruthless hand of the restorer. The house is in the form of a square, with a central open court round which the necessary passages run, so that the windows in all the fine



Margin of Lake at Longleat.

suites of rooms command various views of the park and gardens. The front door, always left hospitably open when the family are at home, leads into a large Oak-pannelled dining-hall, with a wide fire-place, hung with antlers and strewed with the skins of strange animals, tall plumes of Pampas Grass in huge vases harmonizing well with the other decorations. There is no great collection of pictures such as many of our old mansions possess; among the most interesting works are some large animal subjects by Schuyders on the principal staircase, some portraits by Holbein or his school, and a fine full length of the present Lady Bath by G. F. Watts, R.A. In the various rooms and corridors there are some good old examples of inlaid cabinet work and of oriental porcelain, but the most valuable treasures are in the library, where are many unique books and manuscripts, an account of which was given in the "*Transactions of the Somersetshire Archaeological Society*" a few years back. The house is willingly shown to visitors, and the public are allowed to drive or ramble through the park, and enjoy freely all its beauties, woods, and glades.

The engraving is from a sketch made during the present year by Mr. Alfred Parsons, the landscape painter.

W. R.

THE GARDEN FLORA.

PLATE CCVIII.—SOME ORNAMENTAL SPECIES OF HIBISCUS.

WITH A FIGURE OF *H. SCHIZOPETALUS*.

Drawn by CONSTANCE PIERREPONT.

THE genus *Hibiscus* numbers some 150 species, and it is represented in nearly all tropical and sub-tropical regions and in some temperate countries; yet, notwithstanding its wide diffusion and the ornamental character of many of its species, few of them have retained a permanent place in gardens. With the exception, indeed, of *H. rosa sinensis* and *H. syriacus*, the genus is now hardly known in gardens, although, from first to last, nearly 100 species have been introduced and cultivated for a longer or shorter period. It is true that most of the species grow too large for small conservatories, and they are not, for the greater part, of neat and compact habit, which is doubtless the cause of their disappearance. The late Sir Joseph Paxton, writing on the members of this genus, says:—"Nothing in the large conservatory at Chatsworth, through the season in which their flowers are expanded, elicits more universal admiration than the various species of *Hibiscus*. Planted in the borders each specimen fully develops its natural character, flowering in the most profuse splendour the greater part of the summer and autumn. Some of the species grow most luxuriantly, attaining the dimensions of large trees; a greater number exhibit a less exuberant growth, forming most interesting objects; others are herbaceous, attracting attention by their tall slender stems and strikingly large gaudy flowers." The following is a selection of the most desirable species for various purposes. They vary in stature and duration from small annual herbs to large trees. The arrangement of the species is alphabetical.

H. Cameroni.—A Madagascar shrub, figured in the Bot. Mag., plate 3,936, and dedicated to Mr. Cameron, at that date (1842) curator of the Birmingham Botanic Garden. The leaves are like those of the Grape Vine in shape, and the large flowers are cream or pale yellow, suffused with rose, and each petal is furnished with a bright crimson purple spot near the base. It is a tall shrub, with stout branches.

H. coccineus.—A native of the south-eastern States of North America, and hardy enough to withstand our winters, but requiring the temperature of a warm conservatory to bring it in flower perfectly. One of the handsomest of the herbaceous species, growing 4 ft. to 8 ft. high under favourable conditions. The flowers are of deep crimson, and 5 in. or more in diameter, and the elegant leaves are five-parted to the base. It was introduced in 1778, or thereabouts, and is figured in the Bog. Mag., plate 360, under the name of *H. speciosus*, by which name it is better known in gardens. This is a less massive and robust species than most of the North American ones, and it is at the same time one of the showiest.

H. Colleri.—One of Mr. Bull's recent introductions from the South Sea Islands. A shrub with ovate, oblong, and coarsely toothed leaves, and double buff and yellow flowers, with blotches of crimson near the base of the petals. There is a figure of it in the "Floral Magazine," new series, plate 214.

H. Cooperi.—A shrub having lanceolate, oblong leaves, variegated with white and red. It was introduced some years ago by Messrs. Veitch, who received it from Australia, but its native country is somewhat uncertain. The scarlet flowers are about 6 in. in diameter; towards the base the petals are nearly white, and the centre of the flower is dark crimson. In its best condition, as represented in the "Illustration Horticole," plate 412, it is a very ornamental plant. Moreover, it has the advantage of being small and densely branched.

H. Denisoni.—A fine white-flowered species, imported from Australian gardens by Mr. B. S. Williams, and figured in the "Floral Magazine," new series, plate 232. It is a handsome species evidently allied to *H. Cooperi* from the same source; and it is probably a native of the South Sea Islands rather than Australia.

H. ferox.—A very remarkable species with large prickly leaves, not unlike those of some species of *Solanum*, and small yellow and red flowers, resembling those of a *Mahernia*. The calyx is red and the twisted petals a deep yellow. It is a native of New Granada.

H. insignis.—In Regel's "Gartenflora," 1876, plate 868, is a figure of a very showy *Hibiscus* bearing this name. The leaves are very much like those of the Grape Vine in shape, though smaller, and the yellow and buff flowers, with a band of crimson near the centre, are about 3 in. across. Dr. Regel states that it grows several feet high, blossoms very profusely, and deserves a place in every hothouse.

H. Jerooldianus (Paxton, Mag. of Botany, xiii., plate 1).—An exceedingly handsome herbaceous species, native of Brazil, and requiring a high temperature to bring it to perfection. It has digitately-divided somewhat glaucous leaves and rich, dark crimson, saucer-shaped flowers, 4 in. to 5 in. in diameter. Sir Joseph Paxton dedicated this species to the memory of the author, Douglas Jerrold. Firminger says in India it is a small, very choice, herbaceous plant, bearing in the hot season very large, splendid, carmine-crimson flowers. The stem dies down (in India) in October, and the root lies dormant until the approach of the warm weather.

H. liliiflorus.—A very handsome shrub or small tree, a native of Mauritius, Rodrigues, &c., having foliage similar to *H. syriacus*. The pink and white flowers, with a crimson centre, are about 6 in. in diameter, and the petals, instead of meeting or overlapping each other as in most of the species, are distant. There is a figure of it in the Bot. Mag., plate 3144, where it is called *H. Genevi*; and plate 2891 of the same work represents a hybrid between this and *H. rosa sinensis*. This differs from the typical plant chiefly in the deeper colour of the flowers and the broader petals. The foliage of this shrub, like that of many others collected in Rodrigues by Dr. Bayley Balfour, is very heteromorphous, varying according to the age of the individual. In quite a young state some of the leaves are long and very narrow, and others are divided to the base into three very narrow lobes. This state is the *Terminalia elegantissima* of gardens. As the plant gets older the leaves become broader and less deeply lobed, and in old specimens the lobation disappears, and the leaves are ovate and acute. The gradual transition from one extreme to the other is well illustrated by a series of specimens in Kew Herbarium.

H. marmoratus.—In the size and shape of its flowers and its foliage this resembles an *Abutilon*, and was first cultivated as *Abutilon marmoratum*; but it differs from that genus in having a conspicuous involucre at the base of the calyx. The flowers are white, mottled with bright rose. It is a native of Mexico.

H. militaris.—A robust herbaceous perennial, native of the Eastern States of North America, from Pennsylvania and Carolina southward. It has handsome white flowers, veined with pink and crimson in the centre, but they are produced freely in this country in warm seasons only. It was introduced in 1804.

H. Moscheutos.—A showy herbaceous plant, 3 ft. to 5 ft. high, inhabiting the borders of marshes, particularly near the salt water, in Canada and the Eastern States of North America. It is figured in the Bot. Mag., plate 882, under the name of *H. palustris*, and it is there stated that, although hardy in this country, it rarely flowers. This is probably due, as suggested by Sweet, "British Flower Garden," vol. iii., plate 286, to their being usually planted in too dry a situation. Pursh states that it grows in swamps and salt marshes, and flowers from August to October. There can be no doubt that this plant loves water. A curious circumstance in its history is that it was long ago naturalised along the borders of the watercourses in the Landes of France. For a long time it was regarded as really indigenous, and Thore described it under the name of *H. roseus*. Mr. Daydon Jackson, in his reprint of Gerard's "Catalogue of Plants," identifies "the Strange Marsh Mallow" with this species, but we think erroneously. In foliage it resembles our native Marsh Mallow, but the rose or yellow flowers are from 4 in. to 6 in. or more in diameter. It is only the yellow-flowered variety that we have seen with flowers exceeding 6 in. in diameter, and that only in a dried state from southern habitats.

H. mutabilis.—A shrub with an arboreous habit like *Lavatera arborea*, which latter, by-the-by, is a very effective hardy plant, and might well replace some tenderer subjects in what, for want of a more expressive word, is called the sub-tropical garden. *H. mutabilis*, like *H. rosa sinensis*, is commonly cultivated in the tropics, and of Asiatic origin. It has ample lobed leaves, and very large single or double flowers. Rheedee devotes five double plates to this species in his "Hortus Malabaricus" (1868), and in Ferrari's "Cultura di Fiori" (1638) there are half-a-dozen fine engravings illustrating different varieties. In the latter work it bears the name of *rosa sinensis*, from which it is at once distinguished by its large palmately-lobed leaves. Some of the double flowers figured by Rheedee are as much as 6 in. across, and resemble *Pæonies* in appearance. The specific name *mutabilis* refers to the circumstance that the flowers change colour after expansion, connected with which are some very curious stories and superstitions. When the flowers first open in the morning they are white, then they change cream-coloured and pink, and finally become of a deep rose tint. A specimen in the Kew Herbarium, collected by Dr. Sinclair in Mexico, has the following note attached to it: "From the garden of the Corregidor of Esmeraldas, where it is considered a wonder. The flowers are said to be white in the morning, red at noon, and purple at night. I saw one that was adorning a lady's hair white at break-



fast, and red in the evening." A single-flowered variety is represented in the "Botanical Register," plate 589, and a double one in Andrew's "Botanists' Repository," plate 228. The flowers of the latter are about 3 in. in diameter; one is green, another white, and a third rose. This species was first introduced into this country by Lord Portland in 1690. It requires considerable space to develop its full proportions, attaining 15 ft. to 20 ft. in height, and, although it grows in the southern part of Japan, it does not flower freely without considerable heat.

H. rosa sinensis.—This in its various forms is one of the most ornamental species of the genus, and it is a universal favourite in tropical and sub-tropical countries, being cultivated, wherever there are gardens, from Mexico to China. Two varieties were cultivated in this country, according to Philip Miller, in 1731. As is the case with many other cultivated plants, the native country of *Hibiscus rosa sinensis* is unknown, unless, as is conjectured, *H. schizopetalus* be a state of the same species. The earliest historical account of it we have seen is in Rumphius' "Herbarium Amboinense," where it is designated the Festal Flower, or Bonga Raja. The author of the book in question states that he nowhere saw it wild, but it was cultivated all over India, the Malayan Archipelago, and even in China, where he says it replaces our Roses. The natives are extremely partial to it, on account of the rich crimson colour of the flowers of the variety commonly cultivated, and they employ it in all their ceremonies, whether mirthful or mournful. Rumphius represents a double-flowered variety, and he states that he has seen one having white flowers. Firminger, in his "Gardening for India," mentions a variety with pale straw-coloured flowers, and another having double salmon-coloured flowers with a crimson centre. There is perhaps no more attractive variety than the ordinary single crimson, as represented in the Bot. Mag., t. 158, though there are some with much larger flowers. The double flowers are usually ragged and irregular. A variety called *variegatus* has the crimson petals striped with white. There is a handsome double crimson variety figured in Loddiges' "Botanical Cabinet," plate 995. It may be mentioned that the Europeans in India call this species the Chinese Shoe Plant, because they employ the flowers to polish their shoes.

H. rosa sinensis var. schizopetalus.—The *Hibiscus* represented in the accompanying illustration is a most singular and elegant plant, which Professor Oliver regards as a variety of *H. rosa sinensis*, and which he has named *schizopetalus*, in allusion to its pinnatifid petals. Dr. Kirk discovered it in Tropical Africa, and Messrs. Veitch have introduced it. They succeeded in flowering it last spring, from which plant our plate was prepared, and the Royal Horticultural Society awarded it a certificate when exhibited. The memorandum by Dr. Kirk respecting this plant is in Kew Herbarium. "The first specimen of this singular *Hibiscus* was found at Kilwa. It was then in flower, but leafless, and growing on the dry, rocky slopes of a low hill range just behind the town. The second was at the bottom of a damp mountain glen, in the Wanika hills, behind Mombasa, where it grew in perpetual shade among Bignonias, Balsams, and Ferns. Nothing could be more dissimilar than the situations of the two specimens, which were moreover separated by about 300 miles of latitude. The same plant, but of which variety I am unable to state, exists, however, at intermediate points, and I have little doubt the difference of condition indicated by the two localities, from which we have the only two known specimens is quite sufficient to account for the variation observable in the specimens now made over to Kew. I think it is still an open question whether they can be considered the true wild form and original of *Hibiscus rosa sinensis*, or an independent species. The differences are very remarkable. At the same time we must keep in mind that Africa is now coming to be acknowledged as the true centre of several Asiatic trees and plants, including Pentas and Borassus, as also the Tamarind." The differences alluded to by Dr. Kirk are chiefly in size and the degree of lobing of the petals. There is also a little diversity in the colour, which is, judging from the dried specimens, of a more rosy-purple hue in the specimen from the southernmost habitat. The largest dried flower is nearly 3½ in. in diameter. *H. schizopetalus* differs from ordinary *H. rosa sinensis*, independently of the pinnatifid petals, in the involucre at the base of the calyx being reduced to very minute teeth, or almost obsolete. In the latter the leaves of the involucre are at least half as long as the calyx. Whatever the relationship of these plants, this new *Hibiscus* is a very elegant one.

H. splendens.—An Australian shrubby species of great beauty, attaining a height of 15 ft. to 20 ft., and densely clothed with a velvety down, and more or less prickly; leaves palmately divided nearly to the base in five lobes; flowers of a uniform soft rose, and 5 in. or 6 in. or more in diameter. As Sir William Hooker remarks, the only fault of this is its size. It is a superb species, inhabiting New South Wales and Queensland, and requiring rather

a high temperature to bring it to perfection. Mr. Frazer, the discoverer and introducer of the plant, wrote of it: "This I consider the king of all the known Australian plants; I have seen it 22 ft. 6 in. high. The flowers this season measured 9 in. across, and they were of the most delicate pink and crimson, and literally covered the plant."

H. syriacus.—This hardy shrub, the *Althæa frutex* of the older botanists, is mentioned here because no selection would be complete without it, and because its merits as a late-flowering shrub are often overlooked. Our choice of late-flowering shrubs is far too limited to warrant us in neglecting so good a subject as this. True, the habit of growth is rather stiff, and the foliage rather sparse and ineffective, but this is compensated for by the fact that this shrub is the only representative of a very distinct type. The late Professor Karl Koch says, in his "Dendrologie," i., p. 485, this charming shrub is unfortunately not planted to the extent it deserves, even in favourable localities, though it is offered by nurserymen for a few pence. Even this unfavourable season the varieties of this shrub were very effective in Battersea Park. The flowers vary in colour from pure white through various shades of red and violet, and combinations of tints of the two. Nearly all of the varieties have a dark centre to the flower, but a recently introduced Continental variety, named *H. syriacus totus albus*, is wholly white, and a most profuse bloomer. Another variety, called *Céleste* by the French, is described as having flowers of a charming cerulean blue, with a crimson centre. There are also double-flowered varieties, but they are not so free as the single ones; and there are others with variegated leaves, which, however, in our opinion, are not the more ornamental for the variegation.

H. Trionum.—A dwarf, showy annual, now rarely seen in gardens. Gerard cultivated it under the name of Venice Mallow, and he remarks that "it prospereth well in my garden from yeere to yeere." The flowers are from 1½ in. to 2 in. in diameter, and of a cream or pale yellow colour, with a purple centre. Sometimes the petals are edged with purple. When annuals were more in favour this was regarded with great admiration. It is quite hardy and will often reproduce itself from seed without any trouble.

H. Wrayæ.—This is merely a variety of the beautiful South-west Australian *H. Huegeli*. It is figured and described in the Bot. Reg., 1840, plate 69. A rapid growing shrub with relatively small lobed leaves, with violet-blue flowers 3 in. to 4 in. across. Dr. Lindley states that it is of easy cultivation, growing luxuriantly in any common soil. The plant in the garden of the Horticultural Society, he continues, has been in flower for two months, and unhesitatingly predicts that it will continue to produce a succession of bloom throughout the winter and spring. Whether this hazardous prediction proved true we cannot say, but this is certainly one of the most desirable in a collection on account of the colour of its flowers.

H. grossulariæfolius, Bot. Mag., plate 4,329, belongs to the same species, differing only in being rather smaller in all its parts. It is stated in the "Botanical Magazine" that it has this character to recommend it, that in the summer, if planted against a wall, it makes a beautiful open border plant, flowering frequently during the summer months.

H. Huegeli var. quinquevulnera has lilac-mauve petals with a crimson-purple spot at the base.

H. lilacinus, Lindley, Bot. Reg., t. 2,009, is a similar plant from the same region with finely divided leaves, but it is a *Fugosia*, not a true *Hibiscus*.

W. B. HEMSLEY.

Culture.

As regards culture, the finest and those most suitable for growing in pots are the *rosa sinensis* section, but, as they come from India and the South Sea Islands, they require warmth. The plants belonging to this section are evergreen, and attain considerable height, but their natural free blooming disposition, blooming as they do when not more than a few inches high in small pots, renders them desirable subjects for cultivation, especially as they are most easily propagated from cuttings. They also bear the knife well, breaking readily when freely cut back, and in this way they may be kept for some time within a reasonably limited sized pot. The individual flowers of the single as well as the double, or, more properly speaking, semi-double, varieties are very effective; in shape they are not unlike a *Carnation*, but much larger. The time of flowering differs considerably according to the manner in which they are treated, but they usually bloom through the summer and autumn months. The mode of propagating is by means of cuttings, which, as I have said, strike readily with sufficient heat any time when bits of the half-ripened wood can be obtained. The most suitable shoots for rooting quickly can be got from plants that have been cut back about the close of the year, and afterwards kept in a temperature of 65° by night, and correspondingly warmer in the day. Thus treated

they break freely. When the shoots are about 4 in. long they should be taken off with a heel, and placed singly in small pots, drained, and half filled with sandy soil, the upper portion consisting of all sand. They should then be placed in a frame or under propagating glasses, where they can be kept close and moderately moist, and they will root in a few weeks. As soon as they are well furnished with roots move them into 4-in. or 6-in. pots; they will succeed in either peat or loam, but, as with most free-growing subjects of a similar character, I prefer loam, where it can be had, of a good turfy character, as in it strong-growing plants almost invariably evince a disposition to produce flowers more freely with less wood growth than when cultivated in peat. Increase the temperature of the house or pit in which they are placed as the days lengthen, giving them plenty of light with air proportionate to the temperature and state of the weather, using a little shade in the middle of the day, and syringing freely overhead in the afternoons. When the young plants have fairly started into growth pinch out the points to induce them to break back. Through the season they require nothing different from the general occupants of a warm stove. Even this first season many of them may be expected to produce flowers when, standing as they ought to be, on the front stages of the stove, they form conspicuous objects. After the blooming is over shorten them back a little, and as soon as they have broken, shift them into pots 3 in. or 4 in. larger, using soil similar to that named, to which has been added sufficient sand to keep it in a healthy, open condition. Through the autumn months, subject them to drier treatment, both as regards the atmosphere and soil; winter them in a temperature of 60° at night, or even a few degrees higher will suit them better. Their management during the ensuing spring and summer will require to be such as that recommended for the preceding year, except that no stopping should be attempted, except with the view of inducing a portion of the plants to bloom later. After they have again flowered, the shoots should be shortened back more or less, according to the size to which they are destined to be grown; but there is no state in which they are more useful than when confined to small pots. A sufficient stock should be propagated yearly, and the plants should be discarded after their second season's blooming; but, where desirable to grow them on larger when they have fairly broken, they should be turned out of the pots, as much of the surface soil should be removed as can be done without disturbing the roots in a way likely to injure the foliage, and they should be repotted in soil similar to that in which they have hitherto been grown, being guided as to size of pot by the size to which the plants are desired to be grown. They are free rooters, and will bear a shift of 8 in. or 10 in. without any danger of the soil becoming sour, and the larger the plants the greater quantity of flowers will they produce, and in this way, with additional root-room, they may be increased in size for several years; but to avoid more root-space being allowed than is convenient, they can be kept in a healthy condition with their roots somewhat restricted, making up for this by the frequent use of manure water during the growing season.

Like most plants that require a high temperature, Hibiscuses are subject to the attacks of insects; the leaves especially, if the plants are allowed to want for water, either at the root or overhead, are liable to suffer from red spider, but if the syringe be regularly used and sufficient care be taken that the water effectually reaches the under side of the foliage, this troublesome little parasite cannot get a footing. Where it happens to exist I have found the best remedy to be a weak solution of Fowler's Insecticide, in which the plants should be either dipped or syringed, so that every portion is reached by the mixture. Green fly sometimes makes its appearance on the young shoots, for which either dip the plants in Tobacco water or fumigate. Should they become affected with scale or mealy bug, sponging must be resorted to, as, except when the plants have been cut back, and are denuded of their tender foliage, the leaves will not bear any dressing strong enough to kill the insects.

T. BAINES.

Tyerman's Groundsel.—That successful amateur gardener, the Hon. and Rev. J. T. Boscawen, tells us, in a contemporary, that "unripe or even green seeds of Tyerman's Groundsel (*Senecio pulcher*) will germinate quite freely." We happen to have sown some "rather ripe" seeds of this plant three weeks ago, and can corroborate his valuable testimony. The quick germination of many seeds, notably Cereals in the ear in wet harvest times, is very suggestive, and, in the case of many other hardy flowers, the best way is to sow their seeds as soon as ripe. They thus germinate quickly, whereas, if kept long or dried they will lie dormant for months, and so much time is lost. Seeds for sale and seeds for sowing are essentially different, and we might often call to mind with advantage that Nature rarely stores her seeds up during the winter, but far oftener scatters them as soon as she has made sure of their germinating power.—B.

GARDENING FOR THE WEEK.

Flower Garden.

At the present season, the one special requirement in flower gardens and pleasure grounds is, as has been previously stated, the maintenance of neatness. Clean, firm walks, smooth turf, freshly-pointed flower-beds and shrubbery borders, produce nearly as much garden enjoyment at this dull season as flowers do in summer. At least, such is my experience, and I doubt not others have felt the same, and, such being the case, no labour should be thought too great to attain this end. Of course, where there are many deciduous trees, the fallen leaves will for the present retard the extreme neatness here alluded to, but as soon as all are down, rake out every corner, or the first windy day will blow them just where they are not wanted, and tell tales of work only half done. If the weather prove open and dry, shrub and tree moving and planting may still go on; to plant under any other conditions is simply wasted labour, for the commonest tree or shrub fails to thrive if planted whilst the soil is pasty; the reason is not far to seek—the spongioses and breathing pores of the roots are, as it were, sealed up by compression of the sodden soil about them when planting. Contemplated alterations and improvements should at once be decided on, and undertaken whilst there is time for such labour, without neglecting work which, as the season advances, requires to be done. Soil, vegetable mould, and manure should also now be got together for enriching the beds in spring, and also for potting bedding plants; these latter will require careful attention as to watering, till daylight and a drier atmosphere are on the increase.—W. W.

Auriculas.—Since I last referred to these the weather has changed two or three times. The frost, which has been of unusual severity for the time of the year, was succeeded by a few mild days, again followed by a keen east wind and sharp frosts, with a heavy fall of snow. The frames, as I write, are covered to the depth of 3 in. or 4 in. with snow; if the frost were to be intense it would be quite as well to allow the snow to remain, but as it continues to thaw it must be removed. I do not care how keen the frost may be if the leaves are dry, but frost acting upon plants through the glass causes the leaves to be covered as it were with a thick hoar frost. It involves a little trouble to throw a single mat over the glass, but it is desirable to do this rather than the plants should suffer from damp caused by the frost. During the last few days a large portion of the leaves has decayed, but we will not touch the plants until they are dry and the weather warmer, when it will be necessary to go over them to remove any portion of decay on the stems or leaves. Still continue to admit air freely when the weather is dry.

Carnations and Picotees.—Plants placed over a gentle heat are rooting freely and looking well. It is fortunate that we were able to place a portion on a hotbed; had we not done so some of them would have been practically lost for next season. Plants that have been placed out in cold frames require much the same treatment as that recommended for Auriculas. Admit air freely and see that there is no drip over any of the plants, for should a pair of valuable sorts be left under a drip, the result might be ruin to the plants in a week or two. I see the old stools that have been placed in a cool house are looking well, but the dry atmosphere is causing green fly to increase on the layers, even while they are in a temperature but little above the freezing point. For this fumigation must be resorted to.

Hollyhocks.—Where these have been recently potted, many of the leaves continue to decay, and it is quite necessary that they should be removed without delay. Such work can be done when snow is on the ground and it is difficult to get on with some operations out-of-doors. It is also a seasonable time to see to the old stakes that have been used. They may be cleaned and stored away neatly in a dry place, and any that have decayed at the base may be cut shorter, to be used next year for Dahlias, and new ones may be prepared for the Hollyhocks. In many places good stakes can be obtained in the woods from the cuttings of tall brushwood. The growths of stools of Ash or Hazel cut over when about 10 ft. or 12 ft. long answer well for stakes; but where these cannot be obtained, they may be made of 1½ in. deal cut into strips, the corners planed off, and the stakes painted green, except that part under ground, which should be painted with a mixture of equal parts boiling tar and pitch. We have had stakes last for ten years when they have been painted in that way.

Pansies in Pots.—These are never at rest during winter when the air is above the freezing point. They do not require very much attention, except to see they do not suffer from the attacks of green fly. They should now all be in their flowering pots, and as these are not well filled with roots, care must be taken not to apply any water

to the roots unless the soil is fairly dry. Give air to the frames freely, but shut them up early in the afternoon if there is any sign of frost, and cover them with mats at night.

Forcing Pinks.—Those who have not yet grown these useful plants for forcing have a treat in store. Plants of them everywhere are small this year, and they do not look very healthy, the result of the bad season: but we have potted two or three of each in one pot, and hope to have as good a display from that number as we have previously had from one plant. The best position for them now, next to a shelf in a cool greenhouse, is plunged amongst dry Coconut fibre refuse in a cold frame facing the south. The pots require moderate supplies of water, and the plants must be kept quite clean.

Polyanthuses.—It is not necessary to give these treatment at present very different from that given to Auriculas. Keep the lights over them in severe weather, but give air freely whenever the weather is dry. See that none of the plants suffer from want of water at the roots, and keep green fly off the leaves by fumigating, but be careful not to over-do the fumigation, as the leaves are easily injured.—J. DOUGLAS.

Orchids.

East Indian House.—The time is now at hand when, on account of the greater portion of the plants being either actually in or approaching a state of rest, this house should be kept in the coolest and driest condition that circumstances will permit of. Where, as in very many places, there are no means of separating such portion of the stock as are making growth at this season from the greater number now dormant, it is necessary to effect a compromise by keeping up as much heat as will prevent those that are making some growth having it altogether stagnated, but yet not using so much as will keep up the growing energies of those plants that now, for more or less time, should be in no way excited. The atmosphere ought to be kept sufficiently dry without bringing it to the parching condition that sucks out the moisture from the foliage, to which we sometimes see inexperienced growers resort, under the impression that they are thus treating the plants after the manner they are subject to when growing wild in their native countries; but in which state the growth, from the full exposure to the open air, is of a stouter, less succulent character than that of plants grown under glass in artificial heat, even when treated in a way to give the growth the greatest solidity possible. It consequently becomes a mistake to submit Orchids in a cultivated state to the extreme drying process that some of them undergo in their native habitats. This over-drying process is frequently carried out with a view to induce the plants to flower, but from all that has come under my own personal experience or observation, I feel convinced that if the conditions under which the plants have been grown were not such as to impart to them the robust, gradually-matured texture in their respective parts of stems and leaves, accompanying which there is always a disposition to flower, no amount of pinching during the season of rest will do more, except with a very few species, than produce a meagre display of bloom, and which is generally at a corresponding expense in the strength of the plants. For in this matter it may be safely said that the softer the growth, with a proportionate little disposition to flower, the less the plants are calculated to bear any extreme drying process, or even as low a temperature as they will stand where the treatment has been of a character to produce short, thick, leathery leaves, and strong, stout, pseudo-bulbs. The worst effects of over-drying, especially through an absence of moisture in the atmosphere, are most apparent in Vandas, Aerides, Saccolabiums, and others of a like habit of growth, and I have noticed that where the atmosphere is kept too dry, unless they receive water at the roots that prevents their resting so completely as they ought, shrivelling and loss of leaf are certain to follow. The temperature for the next two months may be kept about 60° in the night, with some half-dozen degrees more in the daytime. Even with the minimum condition of moisture in the atmosphere now some slight drip from condensation on the roof is sure to take place, and falling, as it always does, from the sash bars and pur-lines in particular places, it becomes necessary to look closely where these drips occur, as it frequently happens where not noticed that plants standing immediately under where condensed water falls in this way are kept so moist at the root, that the perfect state of rest required does not take place, and the roots get injured from the effects of being too wet whilst the temperature is low. The greater portion of Orchids do not need a long period of rest, or, in fact, so long as they are often subjected to when in a cultivated state; except where the object is to retard the time of flowering, I have found two months complete suspension of growth sufficient for most of the non-bulb-forming species.

Vanda teres.—This, one of the most beautiful of the genus, is rarely seen flowering well where treated like the other members of

the family. It likes an exceptionally long period of rest, keeping perfectly dry, without which its growth never wholly stops, and if this does not take place I have never been able to bloom it well. If kept for three months, or even longer, totally without water, and so as to cause its leaves to shrivel very much, no more injury to the foliage will occur than the loss of a few of the lowest and oldest leaves. The temperature of an intermediate house, such as where the majority of Cattleyas are grown, will suit it whilst at rest better than the warmer house.

Cœlogyne cristata.—This, one of the finest and most useful of all winter-flowering Orchids, will now be fast pushing up its bloom-stems, and will require removal to the warmest department. I frequently hear complaints that the flower-spikes after being formed do not progress; this I think in most cases is attributable to their getting wet. I have found them very impatient of moisture, and should advise from the time of their pushing up from the base of the bulbs that care be taken in giving water to the roots not to allow it to touch the spikes. Where a good stock is grown, by keeping a portion in the intermediate department for some weeks yet, a succession of flowers will be secured.

Insects.—Opportunity should be taken whilst the plants are at rest to give more attention than at other times during the year to the eradication of insects. This cleansing process, even with the greatest care, especially in the removal of scale, and the little yellow thrips that lodge in the centres of the plants, is difficult to carry out without some injury; but with the leaves, as now fully matured, and the cuticle comparatively tough, they are less likely to suffer; and I may here remark that no matter how well adapted for the purpose the houses in which the plants are grown may be, or how skilful the management in other respects, without sufficient labour at command to keep the stock thoroughly clean, it is useless to expect Orchids to ever attain the strong vigorous state, well furnished with plenty of healthy leaves, so desirable, and without which the plants never increase in size as they ought to do. Far better, particularly with plants like these, that are slow growers and costly to begin with, be content with half the quantity than cultivate larger numbers than there is means to treat as they ought to be.

Intermediate or Cattleya House.—Here the greater portion will now be at rest, particularly most of the spring-blooming Cattleyas and Lælias, and in regard to such it is not necessary to say, only to those who have had very little experience in their cultivation, that the object in view in resting these plants is to regulate their time of growing and flowering so that the growth may be made under such conditions of lengthened daylight as are essential to their well-being, for unless the flowers to be looked for are already in them in an embryo state, no extent of pinching or drying can produce bloom; but from their natural habit, with thick, fleshy, pseudo-bulbs and leaves, and the less moisture, especially to the root, that they require even when growing, they will bear keeping uninterruptedly dry for a very much longer period than the species mentioned in the warmer department; and that this has no ill effects upon them may be seen by the quantities of roots that many of the species push from the base of last year's pseudo-bulbs, and which, together with the older roots, continue growing all through the time they are kept dry. The grand old Cattleya labiata and Lælia Perrini, now in most cases with their blooming about over, need especial care, particularly the Cattleya, as it is very apt to be injured through its thick, fleshy flower-stems rotting, which they often do, so far as to destroy the leaves they spring from. To prevent this, it is well to cut the scape with its stem right out from the base as soon as the blooming is over, and to be careful that no water gets into it until quite dried up. Most of the Cattleyas, Lælias, Epidendrums, Oncidiums, and the like now having completed their growth, will require little root moisture for a considerable time. Here also the condition of the atmosphere as to moisture and the temperature will need to be regulated by the way in which the plants have been grown; but, as most of those at rest, as I have already intimated, will bear their roots keeping all but dry, and in this way, combined with a reduction in the temperature, all disposition to push into growth can be arrested, it is not necessary to resort to an over-dry condition of the atmosphere. A night temperature of 50° may now be kept up, and a little lower in severe weather, with a slight rise in the daytime.

Pleioneis.—Where these have done flowering they should be potted in fresh material, and they should not have too much water until they have begun to root freely.

Barkerias, such as *B. Skinneri* and *B. spectabilis*, may now be kept as dry as is compatible with their not shrivelling; further than that is an absolute injury, as, from their free-flowering disposition when strong enough, they will bloom without pinching.

Brassias.—Those of the *B. caudata*, *B. guttata*, and *B. verrucosa* type will bear a long course of dry treatment at the roots, as

well as being cool, without which I have not found them to flower freely through an inclination to go off into growth. These plants are not nearly so fashionable as many species, but from their free disposition to flower when treated in accordance with their requirements, the length of time they last in bloom, the plume-like character of their spikes, and the more than usual elegance in the form of the flowers individually, they are well adapted for using in a cut state along with other flowers, though devoid of the brilliant colouring possessed by some Orchids.

Cool Orchids.—Atmospheric moisture will need to be reduced here, but not to the extent necessary for the intermediate and warmer species; neither will the plants require keeping so dry at the root, although the least heat-requiring species of *Dendrobium*, such as *D. bigibbum*, *D. japonicum*, *D. Kingianum*, *D. tetragonum*, and *D. speciosum* want to be kept with their roots dry.

Odontoglossums.—Many will now be throwing up their flowers, especially those of the crispum section; with all these, the growth of which is finished, the material the roots are placed in should be kept in a slightly moist condition; for though many growers have them wet, even in the dormant season, it is difficult to say what is gained by it beyond giving enough to keep them from shrivelling and to support the rising flower-stems; further than this any excess of moisture I look upon as not unlikely to be the cause of the spotted state the leaves are sometimes seen in. These plants will now need to be separated for some time, placing the warmer kinds, such as *O. vexillarium*, *O. Roezli*, *O. Rossi*, *O. Phalanopsis*, *O. hastilabium*, and *O. citrosum*, and also *Masdevallia tovarensis*, in the intermediate house.

Masdevallias.—The majority of these appear to be all but aquatics from the amount of water they need, but even in their case less is required now than at any other season, and with them, as with other plants that need much water, I should advise their being placed on some medium that will allow it to pass freely through and get away from the pots, and not to have them standing directly on shelves or boards that hold moisture, and from which the pots absorb it until the material within them is almost in a state of saturation.

Epidendrums, &c.—*E. vitellinum*, *E. erubescens*, *E. aurantiacum*, with *Lælia majalis*, the different forms of *L. albidia*, and other plants of a like character now associated with the cooler *Odontoglossums*, will need to be kept dry, more or less, according to their requirements, allowing the temperature to be at about 45° at night. —T. BAINES.

Hardy Fruit.

Where the good old practise of applying surface mulchings of manure to all newly-planted trees has this season been carried out, there need be no fear that the present severity of the weather will in any way prove injurious to them. Those who have not yet so dressed fresh-planted, or recently root-pruned trees, should take the first opportunity of doing so, for such a dressing not only acts as a fertiliser, but excludes frost, and the ground being thus kept warmer, fresh root action is the sooner induced. Nor is the application of such surface manurings alone beneficial to newly-planted trees, but to all fruit trees that are in any way exhausted by over-production. As a rule, it is best to pull up and destroy old and decrepit trees, and to replace them with young ones; but, at the same time, it is well to distinguish between decrepitude and those that are only suffering from want of assistance to re-invigorate, and start them as it were, into new life. All such trees should have the old soil removed right down to the roots, and new compost, consisting of good fresh loam, bone manure, and charcoal, or wood ashes added, and afterwards a good surface dressing of rotten manure should be given them. We never fail in giving Strawberries and Raspberries such a manuring every autumn, and the results are heavy crops of fine fruit. The temperature of the ground being now about at the minimum point, and growth in fruit trees suspended, any planting still on hand would be better deferred till growth again commences in February. Meanwhile, whenever the weather is favourable push forward all such operations as pruning, training, nailing, and tying. All kinds of fruit trees, with the exception of Peaches, may now be operated on; indeed, considering the sunless character of the season, I am not certain whether it would not also be advisable to prune and retrain these to the walls at once; at least they would thus get the full benefit which walls afford as to warmth, and they certainly require it, for the wood is still very green. In any case, the trees need not be loosened from the walls with the view of retarding the flowering season, as, from present appearances, this is sure to be late. It is a very difficult matter to lay down a rule as to how, and to what extent, certain trees should be pruned; but the following may aid those who are in doubt through lack of experience: First, then, if a tree has grown extra vigorously, there is a disposition to use the knife proportionately freely; but this only

tends to aggravate the evil. The strongest growers must have the lightest pruning, and the vigour must be repressed by working down amongst the roots, and cleanly cutting off what are commonly called "tap roots," i.e., roots that have developed a perpendicular form of growth without throwing out side-rootlets; when these are severed the trees become more fruitful and less productive as regards top growth. Trees that make but moderate or poor growth may, if necessary to get them into shape or form, be pruned hard, without danger of evil consequences; but, generally, such trees require but little pruning, particularly if at all subjected to summer pinching or stopping, which, after all is the most rational mode of pruning, or, rather, it is a process which renders pruning unnecessary. Apples and Pears will by this time have become injured to the temperature of the fruit-room, and therefore "sweating" will be over. The ventilators should now be always kept closed except for an hour or so at midday when the weather is fine and mild. Examine the fruit frequently, removing any that are decaying, as the fungus spores from these spread to others with great rapidity. —W. W.

Parks and Open Spaces.

The digging of shrubby borders and plantations is of the utmost importance in assisting the growth of trees and shrubs; it mellowes and sweetens the soil, breaks up the haunts of many injurious insects, and gives a neat and clean appearance to the borders. Dry weather in November and December is the most suitable time for this work, as then most of the deciduous trees and shrubs have shed their leaves. Shrubberies which have herbaceous borders surrounding them should have the Grass edges neatly cut, and the borders cleaned and mulched where necessary; all stools requiring it should also have suitable protection from frost. Where no such borders exists the shrubs may with advantage be allowed to grow over the turf, and in no way should the latter be interfered with. Prune trees and shrubs requiring it, rearrange others, or take them out altogether if needful in order to give plenty of room for the better varieties. Although it is very necessary in towns to plant liberally, care should be taken that the best trees and shrubs, especially those which are in the best positions, do not suffer from overcrowding; it is far better to secure a few fine trees and shrubs than a large number of weak ones, and by no other means can a park or open space become thoroughly and properly established. Much damage is done by neglect and carelessness in the matter of thinning out at the proper time because of the imaginary sacrifice; this is false economy however, and should be carefully avoided. Steel forks are the most useful tools for digging amongst trees and shrubs, except in very light soils, spades being much more likely to damage the roots; whatever kind of tools are used, however, care should be exercised in order to keep a sufficient distance from the stems to ensure their safety.

Various opinions exist in reference to the best season for planting, some preferring autumn, others spring. Whatever good reasons, however, there may be for choosing this or that season, one thing is certain, that planting has been very successfully carried out at any period between the end of September and the end of March; much should be left to the discretion of the individual whose duty it is to attend to the work if competent. Speaking from a lengthened experience, I would advise spring planting for wet, heavy, and retentive soils, so also should I prefer spring for street planting where the roots are so confined and but little surface allowed for evaporation. In these positions and under such unfavourable conditions I am of opinion that the sooner trees and shrubs commence their growth the more certain are they to succeed; if, on the other hand, however, they have to remain under such circumstances throughout the winter, root decay is very likely to take place to a serious extent, rendering them less vigorous to commence growth in spring. In light, porous, dry, and most good working soils, I think it is a matter of very little importance at what season planting is carried out within the above mentioned limits. In making new plantations, assuming, of course, that the sites have been properly prepared by trenching or otherwise, the best and most expeditious way to proceed is to lay out the trees first, taking a given variety and placing them, guided by the eye, "which is preferable to exact measurements," in the most natural positions. The person doing this work should be thoroughly acquainted with the various characters of each variety as to colour of foliage and flowers, height to which they may attain, habit, &c. Such trees as Planes, Poplars, Elms, Sycamore, and Birch should be placed first in position, following up with Thorns, Laburnums, flowering Peaches, and such like, which should be planted nearer to the outer edge of the plantations than the last-named. No tree should be planted at a less distance than 8 ft. from the border; if flowers are to be planted round the shrubberies the distance must be increased to from 12 ft. to 20 ft. It will be found when two or three varieties of trees or shrubs have been planted in position, the rest will be more easily arranged, their places coming more naturally by way of filling up as it were. The shrubs should be taken in

exactly the same manner as recommended for the trees, using the larger-growing varieties first. In this way one man may keep a large gang of labourers busy. The men planting should work in pairs. Where time is an object, stakes for supporting the trees may be planted with them; I do not recommend this method, however, as it is somewhat slovenly. The system of planting above described applies specially to plantations of an area of not more than an acre. Where long belts of trees and shrubs on very large areas have to be planted, the work may be done in the same manner except that, to avoid walking over the same ground too many times, it should be carried out in sections. The holes for trees and shrubs should be ample, in order to allow the roots to lie naturally, and not, as is often the case in careless planting, those roots which should be at the bottom are turned up like a birch broom to the top. Never bury trees and shrubs too deeply; the depth at which they have been growing in the nursery or elsewhere being the proper one. This is the rule, of course there are some few exceptions, where being buried somewhat deeply induces new and healthy growth; this must only be done, however, when the varieties so treated are well known to benefit by it. Trees and shrubs should be made firm by treading; but take care not to tread too near the stems. Stakes will also be necessary in the case of trees. Few things are more injurious than allowing either the one or the other to blow about loosely in the soil after planting; indeed, it is very often necessary to go over newly made plantations after high winds, to make the ground firm round any trees which may have become loosened.—C. DENNIS.

Extracts from my Diary.—December 1 to 6.

FLOWERS.—Transplanting Rose cuttings put in last January. Getting in a few more bulbs from beds outside. Taking down Stephanotis from roof of stove before scrubbing and cleaning the house. Potting herbaceous Calceolarias out of seed pans into 3-in. pots. Pruning Roses in pots for forcing. Re-arranging plant house.

FRUIT.—Planting Glou Morceau Pears on south and east walls, and planting Cox's Pomona Apples in orchard. Untying second Peach house before pruning. Getting Vines in pots for table decoration into heat. Plunging second batch of Garibaldi Strawberries in heated frame to start them into growth. Marking ground for planting a row of Damson trees parallel with Cherries previously planted. Transplanting young Currants and Gooseberries. Pruning first quarter of Gooseberries and Apples. Pruning first house of Trebbiano Vines, and laying in shoots required for eyes in an outside border. Pruning Red Currants on north wall and pyramidal Apple trees. Watering Trebbiano border inside after pruning. Sowing first batch of Melons for early spring use of the following sorts, viz., Netted Victory of Bath and Colston Basset.

VEGETABLES.—Making up Mushroom bed outside in the form of an arch. Shifting French Beans into house prepared for them. Tying and stopping Cucumbers. Looking over Asparagus in frames, and cutting all ready for use. Potting a few more French Beans. Earthing up Potatoes growing in pots. Cutting all self-protecting Broccoli ready for use. Tying and thinning Tomatoes in Pine stove. Getting into heat a few roots of Rhubarb. Sowing a few more pots of Osborn's French Bean, and potting another batch. Potting Tomatoes out of seed pans into 3-in. pots. Covering up outside Mushroom beds with manure and mats for protection from frost and wet. Turning up ground to lie rough during the winter.—R. G., *Burghley*.

Garden Labels.—I feel rather flattered than otherwise that my remarks on labels should have evoked some discussion. What I really wished to point out was a durable label, that could be easily obliterated and used again and again. I am fully aware of the value of zinc as a material for labels; nothing that I know of can be compared with it for durability, and for the amateur, who is supposed to have order and method in all floral arrangements, nothing can, perhaps, equal it. The only fault, real or imaginary, I have to find with zinc labels is that they are too durable; and to those who have to lift, disperse, and send away or receive a large number of plants yearly I am afraid the zinc label would be useless, as the time taken to obliterate writing on zinc would be more than the label would be worth; whereas in the case of the label I have described, a touch of paint will instantly turn the old label into a new one. In public gardens a legible system of nomenclature should be adopted, and here, I think, zinc would be a failure, as a zinc label would have to be pulled out in order to be able to read it. In private gardens convenience is generally and variously studied, and a plant that interests a person is sure to have someone at hand to tell its history. I cannot see the force of the objection to a combination of wood and iron. It is a very common occurrence, and may be seen in the spade or the trundle of the garden barrow. "The combination of

wood and wire does not prevent the decay of the wood," says one correspondent. Certainly not, but the same remark will apply to the garden door on its iron hinges.—THOMAS WILLIAMS, *Ormskirk*.

THE INDOOR GARDEN.

PROMENEA ROLLISSONI.

THE pretty little plants belonging to this genus of Orchids have, by Prof. Reichenbach, been classed as a sub-division of the larger genus *Zygopetalum*, but it is as *Promenæas* that they have long been cultivated in English gardens, and as such they will doubtless long continue to be best known. *Promenæa* is a Lindleyan genus, and for all practical purposes a good and well-founded one. Three species are somewhat commonly met with in collections, and of these the plant here represented and *P. citrina* are perhaps the most showy. *P. stapelioides* has small brown-barred flowers, and a densely



Promenæa Rollissoni.

purple-dotted labellum; therefore its flowers strike one as being extremely like those of some *Stapelia*. The blossoms of *P. citrina* (*P. xanthina* of some Continental nurseries and gardens) are smaller than those of *P. Rollissoni*, and the sepals and petals are of a soft golden-yellow colour, the column being streaked with bright red, and the lateral lobes of the lip spotted with crimson. The flowers of *P. Rollissoni* are more expanded, the sepals and petals standing clear of each other, and their colour a soft yellow, the lateral lobes of the yellow lip being barred with purple, as shown in our sketch. All the species are Brazilian, and produce their flowers during the summer or autumn months. Their culture is moderately easy. A compost of peat fibre, crocks, nodules of charcoal, and living Sphagnum Moss, seems to suit them best; and, being of tiny growth, they require but little pot room. Grown in neat little Orchid pans, such as those noticed at p. 436, and suspended near the light, they will be found to succeed satisfactorily. When growing they enjoy sunshine and an abundance of water, both at the root and in the atmosphere. We saw a fine little specimen of *P. Rollissoni* thus grown, and bearing many of its delicate flowers, in one of the little plant stoves at Glasnevin, and from a specimen supplied by Mr. F. W. Moore the present illustration was prepared. The species

belonging to this genus are *P. stapelioides*, *P. lentiginosa*, *P. xanthina*, *P. guttata*, and *P. Rollissoni*. There is another species recorded from the Organ Mountains, whence it was sent by Mr. Gardner (656). M. Descourtilz discovered it on the high range of Ilha Grande, facing the sea, and with an exposure towards the rising sun. Its flowers are yellow, hence its old name *Epidendrum Jouguille*. If this species exists in cultivation, which is doubtful, it may have been confounded with its nearest ally, *P. citrina* or *P. xanthina*.

F. W. B.

JAPANESE CHRYSANTHEMUMS.

It is nearly twenty years ago since Mr. Fortune sent varieties of these Chrysanthemums over from Japan to the late Mr. Standish, from whom they speedily found their way into the hands of the late Mr. John Salter, then of the Versailles nursery, Hammersmith. The latter very speedily brought them into prominence by raising seedlings from them, the produce of seed ripened in Algiers. By sending plants there plenty of seeds were obtained, and amongst the plants thus raised were many good varieties. Mr. Fortune was unable to introduce all the varieties which were cultivated by the Japanese, but, remarkable as it may appear, Mr. Salter was able to raise from those that were introduced varieties exactly similar to those which Mr. Fortune had seen in Japan, but which he was unable to introduce. Since that time (1864) many beautiful varieties have been introduced, but those first raised by Mr. Salter are nearest to what were considered the type, viz., kinds with narrow florets, twisted, recurved, incurved, or straight. One of the most peculiar varieties was named *Tarantula*; it had a centre like a small roundish button, from which radiated a single row of perfectly straight narrow florets, of a pale yellow colour; this was the most unattractive of all, and is now probably lost, although I grew it up to two or three years ago. This variety does not seem to have been encouraged to produce seeds. *Yellow Dragon*, *Bronze Dragon*, *Red Dragon*, *Laciniatum*, and *Grandiflorum* were amongst the varieties grown by Mr. Salter in 1864, but their merits were not then fully appreciated. It was stated that they might be useful for conservatory decoration. In 1868, Dr. Masters, *Hero of Magdala*, and James Salter were distributed, followed in 1869 by *Chang*, *Aurora*, *Emperor of China*, *Giant*, *Gold Thread*, *Mandarin*, *Negro*, *The Sultan*, and *Viceroy of Egypt*. In the following year some very fine flowers were introduced by Mr. Salter, viz., *Garnet*, *Jane Salter*, *Magnum Bonum*, *Oracle*, and *Plantaganet*. Messrs. E. G. Henderson & Son also exhibited *Bismarck*, *Cry Kang*, and *Erectum superbum*. Nearly all the above flowers are grown yet: indeed, very few amongst recently introduced varieties have surpassed them.

It is very desirable that this type should be kept distinct from the other sections. *Elaine*, a very fine white flower, seems to be decidedly crossed with the large-flowered section; as is also *Peter the Great*, a more recently introduced yellow variety. One of the newest varieties possessing the charm of a brilliant crimson colour with the inner florets recurved, their exposed part being deep yellow, is named *Mons. Crousse*, and *Sarnia*, as exhibited at the Royal Aquarium, proves to be a distinct and very good flower. *Fulgore* is a very fine variety, as are also *Gloire de Toulouse* and *Fulton*, the latter a bright golden yellow. One of the most useful amongst the Japanese Chrysanthemums is *Fair Maid of Guernsey*, plants of which are grown by the hundred in some places for the production of cut flowers for market. *Elaine*, though not a true Japanese kind, is also well adapted for that purpose. Japanese Chrysanthemums are now grown very extensively, and we are not left in doubt as to their merits for exhibition purposes, or for the decoration of the greenhouse or conservatory, or as cut flowers for the drawing-room. The stands of them exhibited at the Royal Aquarium were by far the most interesting feature of that exhibition. They are not only beautiful in themselves, but they serve to relieve that sameness of aspect and regularity which the numerous stands of incurved flowers present. The Japanese kinds ought also to be exhibited in the shape of specimen plants, and it could be done in many cases without adding to the expenses. For instance, there are generally three or four classes allotted to incurved flowers, and it would be good policy to take one of these out, and give the prizes to Japanese sorts. It would not be very difficult to grow good specimens with a single stem, each furnished with two or three dozen of fine flowers. What a striking effect, for example, could be made by showing good plants of the following six sorts, viz., *Fair Maid of Guernsey*, *Yellow Dragon*, *Red Dragon*, *Sarnia*, *Monsieur Crousse*, and *Gloire de Toulouse*, grown without twisting and turning the shoots. We have seen what can be done with the Japanese kinds in the form of cut flowers, and it is only fair that we should see them grown and exhibited as specimen plants; and if once well shown in that way they will be again invited. I would urge all

raisers of seedlings to keep the Japanese group distinct; keep to the characteristics of the original varieties, and let all those of the *Peter the Great* and *Elaine* types be relegated to the intermediate sections. These two sorts may be grown as decorative flowers, but they must not be set up as belonging to the quaint Japanese type.

J. DOUGLAS.

CHRYSANTHEMUMS AT STOKE NEWINGTON.

At the annual exhibition of the Stoke Newington Chrysanthemum Society some fine examples of cultural skill were staged. The specimens exhibited were, almost without exception, of large dimensions, furnished with a dense mass of healthy foliage, and with blooms of good quality, thus affording the best of proof that a vast amount of pains-taking care must have been expended upon their culture. Whilst according to the growers that meed of praise to which their skill and patience entitle them, I cannot refrain from entering my protest against the system of training which many growers of specimen Chrysanthemums think proper to adopt. In the case of many of the plants exhibited at Stoke Newington the shoots were so closely tied down, that specimens having a spread of 2 ft. of foliage did not rise more than from 8 in. to 1 ft. from the pot. Tastes vary, but I think that but few lovers of this fine autumn-flowering plant would find a realisation of their ideal in these dwarfed specimens. To my mind these over-trained plants, instead of illustrating the cultivator's art are simply examples of perverted taste and skill. The cultivator's avocation is to mend and assist Nature, not to so manipulate her productions as in a great measure to destroy their true character. The Chrysanthemum is naturally of a vigorous upright habit, and should, therefore, only receive the amount of training indispensable to the production of good blooms, and bushy, compact, or symmetrical plants. There would be some excuse for this restricted method of culture were it the only or the best manner of securing good blooms, but that such is not the case was fully proved at the exhibition in question. In the winning collection of ten plants were specimens which, although retaining all the characteristic features of the Chrysanthemum, yet left nothing to be desired either in the quality or quantity of the flowers. They served, as, indeed, all specimen plants grown for exhibition should do, to illustrate the decorative value of the plant. Conspicuous in this collection was a pyramidal but by no means formally-trained specimen of *Prince of Wales*. This plant was about 4 ft. in height, and clothed with healthy foliage and good blooms quite to the rim of the pot. Such plants as these are capable of being employed with good effect in floral decorations generally, and I would ask your readers to compare their merits with the dwarfed, cramped monstrosities above alluded to. I would also ask what purpose can be served by thus suppressing the true character of the plant. It cannot assist in the production of first-class blooms, and it certainly does not improve the general appearance of the specimen, or in any way add to its decorative value. On the contrary, I consider this dwarf flat form to be very unsuitable for conservatory decoration, or for any kind of arrangement where it might be associated with other forms of flowering or fine-foliaged plants. In this view of the matter I am happy to find myself supported by many growers of great experience, and I feel certain that such examples of misplaced care, ingenuity, and patience will soon disappear from our horticultural exhibitions. Of course good shaped specimens cannot well be obtained without a certain amount of training, and in this, as in all that appertains to floriculture, the happy medium must be sought for. The great error which many growers appear to commit is that of continuing the training until too late a period, plants thus treated having much the appearance of a large dish full of foliage, with flowers dabbled into it at regular intervals. In all cases where development was less restricted the result was more pleasing, and I was gratified to see that in most of the classes the more naturally and informally trained plants carried off the premier awards. Of the standard form some marvellous examples of cultural skill were exhibited, some of the specimens of the large flowered kinds bearing quite 100 finely developed blooms. Plants of this description are very effective, and are certainly worthy of all the pains that may be bestowed upon them. Those who have large conservatories to embellish during the autumn and winter months would find the standard form of the Chrysanthemum very useful, as they may be used with good effect in situations where dwarf specimens could not well be employed. Fine as were the standard specimens at Stoke Newington, perfect in foliage and bloom, I consider that they would have presented a much more agreeable appearance had not the training been so rigidly conducted, and the individual flowers tied down so closely. I think it would be found that a more free and natural growth would not be incompatible with the production of first-class blooms. Amongst the many fine varieties exhibited the following were especially noteworthy: *Mrs. Dixon*, *Golden George Glenny*, *Mrs. Rundle*, *Hero of*

Stoke Newington, Prince of Wales, President, Jardin des Plantes, Aureum multiflorum, Empress of India, Lady Hardinge, Golden Beyerley, Barbara, refulgens, Queen of England, Fanny, St. Michael, Cedo Nulli, Calliope, Golden Cedo Nulli, Antonius, Miss Nightingale, and Perle. The following Japanese kinds were very fine as cut blooms: Elaine, Bismarck, Bouquet fait, Tarantula, and James Salter. Although these Japanese forms are a wide departure from the florist's ideal, they should certainly be accorded a place in every collection. When associated with other kinds they form to them a complete and pleasing contrast, and are very effective when employed as cut bloom. Those wishing for a dozen good and distinct varieties of Chrysanthemums could not well do better than obtain the following. In forming a small collection it would be better to make some sacrifice of quality in order to ensure variety of form and colour. Some of the varieties here given are chosen on account of their distinctness, or for other good qualities which should recommend them to the small grower, who naturally desires to make the most of the space at his command. Prince of Wales, Golden G. Glenny, President, Aureum multiflorum, Empress of India, Progne, Fanny, Cedo Nulli (white), Perle, Mrs. G. Rundle, Elaine, and James Salter.

English.

JOHN CORNHILL.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Culture and Propagation of Monochætum.—Bushy little specimens of these neat habited, bright, free-flowering plants, in 4½-in. and 6-in. pots, are very serviceable for conservatory and window decoration, and, being of easy culture, they may be grown by anyone having the convenience of a frame or greenhouse. The most expeditious method of propagating them is to place a plant in gentle warmth early in the year, taking off the cuttings as soon as formed and inserting them with two pairs of leaves in silver sand. They will quickly form roots, and may then be potted off into thumb pots, to be shifted as soon as fairly established into 4½-in. and 6-in. pots. Leaf mould, peat, and light fibrous loam will be found to best fulfil their requirements in the way of soil, employing these ingredients in equal proportions, and adding thereto one-sixth of coarse silver sand. During the early spring months they should be kept in a warm, genial growing atmosphere, ventilating freely on all favourable occasions, and pinching the leading shoots in order to induce a bushy habit. By the month of June they will, if thus attended to, have formed compact, healthy, little plants, and may then be transferred to the pots in which they are to bloom. They should then be placed either in a greenhouse or frame, where they may get plenty of light and a free circulation of air around them. A little shade, will, however, be found beneficial in hot weather; and on calm warm nights, especially when accompanied by refreshing dews, the lights may be entirely drawn off; or, if grown in a greenhouse, the ventilators should be left open. By the beginning of September growth will be completed, and the plants should then be placed in the open air for two or three weeks, placing them in a somewhat sheltered and open situation where they may get the full benefit of sun and air. This exposure will have the effect of fully hardening the tissues, and will enable the flower buds to form and acquire substance. They may be wintered in an ordinary greenhouse; or, if they can be afforded a lighter position in an intermediate structure, they will come into bloom at a much earlier period.—J. CORNHILL, *English.*

Pteris serrulata magnifica.—There are many varieties of *P. serrulata* in cultivation. Your correspondent (p. 437) speaks of the "large crested variety" being a handsome decorative plant. Some are well suited for the table, others for the hall. I bought a small plant named *magnifica* from Messrs. Stansfield, of Todmorden, in 1876, which is the best variety for the latter purpose which I have seen. It now fills a 12-in. pot, and has a great profusion of fronds, varying from 3 ft. to 4 ft. long, which are bold and arching, and which keep long fresh on the plant; altogether, it is a most elegant and striking variety, and I would strongly recommend its cultivation. I am not aware that there is any larger form than this; perhaps your correspondents may be able to say.—P. NEILL FRASER, *Rockville, Murrenfield, Edinburgh.*

Salvia Bethelli.—This very beautiful *Salvia*, which was shown by Mr. Cannell at the Royal Horticultural Society's meeting at Kensington on the 18th inst., and noticed in last week's GARDEN, is quite deserving of all and much more than has been said about it. Like most of the family it is easily propagated and very easily grown. Its distinct bright pink colour and profuse-flowering habit cannot fail to make it a general favourite when it becomes better known. When well grown it continues blooming for a long time. It is named after the raiser Mr. J. Bethell, now gardener at Nonsuch Park, Cheam, Surrey.—T. BAINES.

TREES, SHRUBS, AND WOODLANDS.

AUTUMN TINTS IN TREES AND SHRUBS.

AFTER an exceptionally wet year, and a summer almost sunless, it will perhaps be worth while to note the effect they have had on the different trees and shrubs that in ordinary seasons display gay-coloured foliage in autumn. I will confine my remarks from observations taken in Longleat Park and adjacent woods, having watched the changing hues daily. The Norway Maple (*Acer platanoides*) was the first to colour, and quite out-shone all its compeers this season with brilliant and gorgeous-tinted leaves; the colours varied from yellow to glowing fiery-red. The contrast and effect, particularly in the noble and spacious avenue leading from the chief lodge to the mansion, which is planted in double rows alternately with Lime, Elm, and Norway Maple, was a grand sight to behold; the latter at their best stage of colouring seemed to be so many shining lights amongst their more sober-coloured neighbours. The park was literally lit up with them; each tree, so to speak, was like a tree on fire. Of other Maples that coloured before the fall of the leaf, the most noteworthy were *Acer colchicum rubrum* and *Acer Schwedleri*, both dying off pure yellow; the young leaves on the latter during summer are claret coloured and highly ornamental. The Tulip Tree has not appeared in its usual deep yellow-shining suit; a few trees are dying off pale yellow, but others are shedding their leaves a dull brown uninteresting colour. The Liquidambar, too, has failed to make its customary mark amongst rich autumnal-tinted trees, for it is usually beautifully coloured before dropping its leaves, often varying from purple to vermilion and other fiery colours. I am pleased to be able to note that the comparatively new purple Birch may be classed amongst, and in the first rank of gay autumn-coloured trees. A fine specimen growing here is just now clad in foliage varying from bright chestnut to vermilion. This Birch is a very free and fast grower; indeed, my experience of it is that it seems to over-grow its strength. The stem and branches become so long and slender that it can rarely withstand rough winds without suffering breakages. I intend in future when planting this particular tree to be sparing with rich soil, so as to check its over-luxuriant growth. It is a grand acquisition as a landscape tree, and can hardly be too extensively grown. Whilst speaking of Birches, allow me to draw the attention of ornamental planters and nurserymen to the upright Birch (*Betula fastigiata*); it deserves to be better known than it now is, for I think it is destined to become a most effective and useful tree, especially adapted for town and suburban parks and gardens, as well as for general landscape planting. It is not so stiff in outline as the Lombardy Poplar, being more light and airy in habit, with a strictly fastigate growth. I believe it is of Continental origin, and, as yet, only sparsely distributed in this country. The specimens I have of it were imported from France some few years back; they are now about 12 ft. high, and I must say that I am much impressed with their distinct and characteristic appearance.

The scarlet and other Oaks, that are usually rich in autumnal tints are failures this season. Not one has come under my notice displaying a rich hue. The stately old Elms in the park are just now, Nov. 10, fine pictures in burnished golden clothing. The Beech has nearly thrown off its annual russet brown mantle, and the deciduous Cypress, *Taxodium distichum*, a shade deeper and brighter than the Beech, stands out very prominently, and is still a mass of bright warm brown umber coloured foliage; this tree forms a striking and pleasing contrast to all other Conifers on account of its feathery and elegant foliage. There is a weeping variety of it, but it is inferior to the type in every feature. The Wild Cherry, *Cerasus vulgaris*, must not be omitted from the list of bright, fiery tinted trees in autumn, some specimens of it here being very conspicuous and beautiful in the landscape; it is a grand pictorial tree for parks and pleasure grounds; yet how scarce it is, generally, in parks, and how seldom planted in situations which are so well suited for such a charming tree to occupy prominent sites for displaying its sheet of white blossoms in spring and brilliant autumn foliage to advantage. *Amelanchier floribunda* and *ovalis*, as usual, coloured scarlet and crimson; and *Aronia grandifolia* was also richly tinted. Some of the American Thorns were partially coloured with various tints, but not nearly so gay as in ordinary seasons.

The past ungenial, wet, sunless season seemed to have an opposite effect on different species; for instance, the Birch, although it may often be found growing and thriving almost in water, showed its decided aversion to continued rains by shedding its foliage before the summer was out, whilst, at the same time, the Oak, Elm, and Ash were quite green; the latter kept its leaves on a week or two beyond the average date of dropping. The Poplar, on the other hand, like the Birch, almost a semi-aquatic, was destitute of leaves unusually early in autumn. The Larch looked miserable all summer, and parted with its foliage very early; it has suffered severely here—

abouts, both in the young plantations and in the nursery. I also hear from other quarters that the blight is almost general throughout the country; the primary cause is, I think, the severe check in growth which it received from late spring frosts, just as it had started into active growth; and also, doubtless, the unprecedented summer of dull days, heavy rains, and cold nights—the latter were the rule, and not the exception. I do not think there was one warm genial night last summer; what is commonly called a “growing night” was conspicuous by its absence. Not only is the Larch infested with insect blight, but I fear a great percentage of them will prove worthless through the loss of their leading shoot. To nurserymen where the Larch is grown in large quantities and as a speciality the loss must be enormous. Good strong plants of Larch will probably be scarce for a season or two.

I will now offer a few remarks on autumn-tinted shrubs, amongst which the old-fashioned Sumach (*Rhus typhina*) carried off the palm for intense colours with its graceful and brilliant scarlet foliage. *Rhus Osbecki* was not much inferior, the colours being more varied. *Rhus Cotinus* was entirely deficient as regards its usual violet and red tints; indeed, it looked withered before dropping its leaves. *Euonymus europæus* shed its foliage in bright magenta colours, and laden with seed, the cases or capsules of which are hardly less attractive than the rich autumn leaves. The great advantage of this shrub over all others is that after the birds have carried off the seed the pretty seed-cases still hang gracefully on the bushes, and will remain ornamental and attractive during the greater part of the winter months. This peculiarity renders *Euonymus europæus* invaluable as an ornamental winter shrub. *Euonymus latifolius* was slightly coloured; its leaves and seed-cases are much larger than in the common variety, but the latter very soon become discoloured and drop off; it is inferior in every way to the common variety. The common Dogwood (*Cornus sanguinea*) is worthy of notice as a shrub that was well coloured this season; it died off a deep blood-red colour. Its glossy red bark, too, which is best seen to advantage after the leaves have fallen, is an attractive feature of this shrub. *Clethra alnifolia* is a late-blooming shrub that shed its leaves golden-yellow. *Virgilia lutea*, usually deep yellow in autumn, dropped its leaves a brown faded colour. *Viburnum Opulus* (the Guelder Rose) was beautifully tinted, so was *V. plicatum*. The *Viburnum* family are all good ornamental shrubs, and valuable for contrast and effect in pleasure grounds. The old variety, *V. sterilis*, snowball-flowered, is always a pleasing object, especially so when backed up by dark evergreens, its snowy-white snowball-like flowers showing up prominently. *V. macrocephalum* is a variety with immense flower-heads. *Ribes aureum* shed its leaves early, and was less brilliant in tints than it usually is in autumn; some seasons its glossy leaves exhibit a variety of lovely tints. *Cotoneaster Simondsii* is just beginning to show up its bright red colours; when well coloured and laden with yellow fruit it forms a striking object in the ornamental woods here. The birds do not molest the seed until pressed by hunger during hard weather, which is a great recommendation amongst berry-bearing shrubs. The same remarks apply to *C. acuminata* and *C. frigida*; the fruit on them also may often be seen still hanging after most other fruit-bearing shrubs have been cleared by birds; indeed, save these berry-bearing shrubs just mentioned, there are now hardly any worth growing for the beauty of the fruit alone. Since the gun license act came into force small birds have become so numerous that as soon as the fruit is ripe it is swept off in a few days. Ten years ago I could cut any quantity of branches of the Mountain Ash covered with its beautiful fruit at Easter-tide for church decoration purposes, but now not a berry can be found a fortnight after being ripe. The *Cotoneasters* named are the only exceptions that have come under my notice. Lastly the common *Azalea* must not be forgotten as a choice autumn-tinted shrub. It has been, and still is, throughout the ornamental woods everywhere conspicuous, displaying its bright-tinted foliage of almost every hue from yellow to purple and red.

GEORGE BERRY.

The Ginkgo Tree in Fruit.—Professor Sargent (p. 430) mentions that a female tree of the Ginkgo (*Salisburia adiantifolia*), 30 ft. high, had fruited for the first time in the grounds of the Military Institute in Kentucky. Allow me to mention that some years ago, on entering the Botanic Gardens at Venice, I was greatly interested at seeing two large rotund specimens of the Ginkgo, one on each side of the gateway, and one, the female, was covered with its yellowish fruit. The leaves of both were very finely developed, those of the female being rather larger than those of the other. The odour of the outside fleshy pulp was so odious that I was obliged to wash it off (the fruit being too decomposed to preserve). The seeds resemble those of an Apricot, the margin being somewhat flattened. On sending some to Kew, Sir Wm. Hooker told me that this was the

first time that living seeds of *Salisburia* had reached this country. One of the tallest specimens of this interesting tree attained at Red-leaf, in the garden of Mr. Wells, a height of 46 ft.; and one in the Botanic Garden at Pisa, sent by Messrs Loddiges to Professor Savi, was about 60 ft. in height when I saw it in 1845.—E. W. COOKE, *Glen Andred*.

WOODLAND WORK FOR DECEMBER.

THE severe weather which we have already experienced, and the present prospect of a long and sharp winter, must have convinced even the most sceptical of planters of the advantages of early preparation, unless the whole of the work of transplanting is to be deferred until spring. Every attention should now be paid to the scouring of old ditches and the cutting of new ones upon wet soils. The practice of allowing these to fill up as the plantation gets older is one which cannot be too severely censured, for as the roots of trees penetrate deeper into the soil year after year in search of food, the necessity for good drainage, and a proper attention to all water-courses and outlets increases. The unripened shoots which are now to be seen in many plantations of young Chestnut upon wet soils, teach a lesson which the forester may profit by. Upon such the spring frosts will tell heavily, and a stunted growth during the following winter will be the inevitable result.

Timber-felling may be continued without intermission, and frosty weather should be taken advantage of to remove as much of the produce as possible from the woodlands and to the sides of good roads. Where timber has to be cut up by machinery it is a great advantage to get it stacked near at hand in as clean a condition as possible. The Ash is never in better condition for working up than when felled about this season of the year. Monteath, who is no mean authority on matters of this kind, says:—“The Ash should always be felled from after the 15th of November till the last week in January, and never before nor after that time to have good timber and to do it justice.”

Coppice falling will now be in full swing, but if the stools are to be left in a fitting condition to produce a good crop for the future, no cutting from the stool should take place during the prevalence of severe frosts. Wherever such is done the bark is apt to separate from the wood as the winter advances, and thus the water is admitted and the formation of adventitious buds is checked in the spring. By continuous cutting during open weather, and laying the wood in “drifts,” advantage may be taken of the frost to cut up and remove from the falls.

Hop-poles should be shaved as soon as convenient after cutting, and the larger ones—here called “use poles”—should be striped or notched and covered up before spring. In Kent the allotments of underwood have realised much higher prices than were expected earlier in the season, and at many of the sales where partial credit is given the competition for lots has been brisk.

The abundance of leaves which are everywhere to be met with in plantations, rides, and in hollows where they have already drifted, will afford good opportunities for collecting and rotting to obtain leaf-mould. Too little value is generally attached to this manure by those who do not consider the large quantities of saline and mineral matters which are drawn from the subsoil by the roots of trees, and afterwards scattered upon the surface of the land by the leaves.

The cones of Larch and Scotch Fir may still be collected, and in some places the seeds of Ash and Laburnum. The rot heaps will now require to be examined, and an additional covering of earth may be placed upon them. Where small seedlings are liable to be heaved out of the ground by severe frosts, a good sprinkling of the sawdust from hard woods will be found beneficial. That obtained from Fir timber contains too much turpentine to enable it to be used with safety. Either tanners' bark or sawdust may be used for such purposes after being well rotted.

Draining, trenching, fencing, and holing for spring planting may still proceed as weather permits, and road materials may be carted during frosts. Young plantations of Birch, Ash, &c., may now be dug with advantage to the trees, and two years' transplants, which are not making satisfactory progress, may be cut off near the ground. In dry weather hedgerows may be dug and cleaned and gaps filled up by plashing from the old plants or putting in new ones. Where the soil is too light for the Hawthorn to grow into a strong fence, an admixture of Beech may be made with advantage. Upon poor or exhausted soils the Cherry Plum (*Prunus myrobalana*) will soon form a good hedge, and its formidable spines render it a good fence against cattle. It is also useful for shelter, as its leaves come out very early in the spring and remain long after the Hawthorn is bare.

A. J. BURROWS.

A remarkably long Avenue.—Dr. Finsch, in his travels in Western Siberia, just published, tells us that the great road from Nijni-Novgorod to Tiumen, in Siberia, is bordered, with a

few gaps, by an alley of Birches, which are sometimes in double rows. This, as Dr. Finsch ventures to conjecture, must be the longest avenue in the world. It was planted by order of Catherine II., and was to have been continued to Irkutsk. It was forbidden under the severest penalties—banishment to Siberia or death—to fell the smallest of these trees, a precaution without which this unique avenue would never have been finished. Many of these trees are now shattered by age, and those planted in their stead are no longer protected against damage or destruction by laws so severe as formerly. But it is pretty well known that the Russian is indifferent or hostile to trees. On the other hand, as the winter snows become heaped up in mounds around their trunks, which renders the road difficult for sledges, it is a serious question whether this avenue should not be taken away.

DESFONTAINEA SPINOSA IN IRELAND.

I WAS looking over the treasures of a fine old Irish garden near Bray Head the other day, where some South American plants are quite at home in the open air, and was delighted to find this species flowering profusely, without a sign of the severity of last winter upon its leaves or branches. It reminded one of a healthy Holly bush 6 ft. in height sprinkled with flowers of the old *Correa cardinalis*. Fuchsias were also splendidly in bloom; hardy Ferns made



Desfontainea spinosa.

every sheltered nook and corner fresh and beautiful; and *Escallonia macrantha* formed glossy green bushes 8 ft. high, and laden with pendent racemes of bright rosy flowers. Hollies were especially fine in growth, and satisfying in variety; and in the kitchen garden were the finest and healthiest Yew hedges I ever saw, and these were raised from seed by the present proprietor about fifty years ago. Planted in good, deep, rich soil, neither Yews nor Cedars are the slow-growing trees which they are commonly supposed to be. If I am not mistaken, the fine spreading Cedar at Battle Abbey, Sussex (figured in *THE GARDEN*, Vol. VIII., p. 547), was planted only sixty years ago, although, judging by its size, one might suppose that it was centuries old.

In company with the *Desfontainea* I noticed *Clerodendron Bungeanum*, fine bushes of *Eugenia apiculata*, the true Alexandrian Laurel (*Ruscus racemosus*), and a very fine large golden-cupped *Hypericum* called *H. longifolium*. In habit it closely resembled *H. oblongifolium*, but its flowers were equal in size to those of *H. calycinum*, that is, 3 in. to 4 in. in diameter, and of waxy consistence, as are also those of the oblong-leaved species. Its golden flowers, borne at the extremity of bright red stems, were indeed very lovely. The golden-leaved Chestnut succeeded admirably at the same place, every dark green leaf being powdered with gold beneath; and a cut-leaved evergreen Oak, quite distinct from the Fulham or Lucombe varieties, is an especial feature. The *Desfontainea* may not always

and everywhere be grown out-of-doors, but, as a cool greenhouse plant, it certainly is too beautiful and distinct to deserve that neglect into which of late years it has fallen. B.

THE FRUIT GARDEN.

ROOT-PRUNING.

THE differences of soil, climate, and other local conditions have such an influence upon plants, be they grown for the production of food or for purposes of decoration, that a given operation, which may be an absolute necessity in one place is often unnecessary or even mischievous in another. To this, and to the want of sufficient consideration being given to the influence which the attendant conditions above named exert over vegetable life, may, I think, be traced the wide divergence of opinion so often expressed upon the merits of any particular operation connected with cultivation that from time to time comes under discussion. Otherwise it would be scarcely possible to account for the opposite ideas so frequently found to be entertained by different individuals, who, it might be supposed, could not well disagree on matters of a mere routine character. This has often occurred to me, and in nothing more forcibly than in the extreme opposite views that appear to be entertained in reference to root-pruning. On one side are arrayed those who have practised it in different soils and situations for, may be, half a life-time, and who have so carefully noted results as to warrant them in attaching the highest value to the operation. On the other side are those who will tell you with all the confidence possible, that not only is root-pruning useless, but that it is absolutely injurious, bringing the trees so treated into an unhealthy condition from which they take years to recover. Both sides cannot possibly be right. But before venturing to suggest where the mistake lies, let me first say a word about the condition of the trees where root-pruning can with advantage be carried out, and where it is useless.

Those who advocate root-pruning, so far as I am aware, have never put forth the practice as an infallible panacea for bringing fruit trees of all kinds and under all circumstances into a bearing state, but simply urged its adoption as a means to an end with trees that are in certain conditions. The object to be kept in view in root-pruning is to check over-vigorous growth where the inclination to make wood is such that the trees fail to form fruiting spurs and bloom buds, keeping on from year to year making an extension of branches—a disposition which cannot be checked by shoot-pruning, but one which is rather aggravated than otherwise by it. This over-vigorous condition is usually to be found in the case of young trees grafted on free stocks, and that have been planted a few years in naturally rich or highly manured ground, such as in kitchen gardens, where the manure required for the vegetable crops is within reach of the roots, and thus over-excites the trees. It is in such cases as this that root-pruning can with marked advantage be performed. I may here observe that although the supply of fruit for the use of the community at large must always be most dependant upon orchard culture, and not upon the produce of private gardens, in which the mixed system of cultivation of fruit and vegetables such as that under consideration exists; still the latter is the condition in which the greatest number of people who grow fruit are placed, and where the trees are required to be grown to a size midway between those resulting from the use of such as are upon the most dwarfing stocks, and the opposite extreme of being allowed to attain their full natural size as when grown in orchards. It is here where root-pruning can be made to play a very important part by keeping the trees within the required limits as to size, and bringing them into a fruitful condition, as opposed to the alternative of shoot-pruning so severely as to make them all but barren, or else letting them grow on to a size when they would naturally come into bearing of their own accord, but which would make them altogether too large for the positions which they are required to occupy. The practise in thus beginning at the right end to curtail the organs of supply—the roots—where these are in excess proportionate to the dimensions to which the trees are wanted to grow—has common sense on its side, supported by the best results in places innumerable where it has been adopted, and the work carried out with an ordinary amount of judgment.

One or two objects can be attained by the reduction of root-power, viz., a simple check to the over-luxuriance so often present in young trees, and imparting to them the disposition to form fruit buds, which, when bearing, naturally reduce the inclination to make an excess of wood, and thus bring them into a fruitful state sooner than they otherwise would; and, in addition, where required, the size to which they grow can be regulated at will, that is, within reasonable limits. As I have already pointed out, were an attempt made to confine trees growing on free stocks to a few feet in height and diameter,

such as they would keep within when grown on stocks that have an extreme dwarfing influence, no doubt they would soon get out of health, and the fruit they bore would most likely be small in size. But extreme measures such as this are not necessary to be taken into account, as they are outside the object in view, which, as I have already attempted to show, is to secure medium-sized trees able to bear proportionately more fruit than the miniature examples resulting from the use of the Doucin or the Pommier de Paradis stocks for Apples or the Quince stock for Pears, which latter I do not like, as in very many soils the fruit is of an inferior character as compared with that produced from trees on Pear stocks; and with the Quince stock on some soils root-pruning becomes a necessity when the trees are not wanted to grow beyond a certain size.

Like most other operations connected with gardening, success depends upon the work being not only done rightly, but equally so on doing it at the right time; what I mean by doing it rightly is reducing the roots sufficiently to cause the formation of fruit buds, or to keep the trees within the required limits, or both combined, and not to go beyond this, for where such occurs it must inevitably have an injurious effect proportionate with the extent to which the excessive disrooting takes place; for instance, take an Apple that has been planted, say eight or ten years in rich soil, and which has grown so vigorously as scarcely to make any fruit buds; if the roots of such a tree were all cut in so near to the stem as it would be quite safe to go with a tree half its size, the result would be that it would be so weakened as to take a couple of years before it made any growth at all, and though fruit-spurs and buds in plenty would most likely be formed, still these would be so weak as to be useless for a time. And I have noticed still worse results to follow from carrying out the work late on towards spring, even when the roots were not cut in more than they would have borne without injury to the trees if they had been operated upon earlier on in the winter or autumn. The extent to which it is safe to go can only be determined by the size and condition of the trees in each case, of which the operator must be the judge, and I have found it much the best with trees that have stood for any length of time without their roots being interfered with, to only go half round them on the opposite sides at once, working underneath as well to sever any roots that take a downward direction. By this means the cutting back may be carried much nearer the stem of the tree than it would bear if all were reduced at once, leaving those untouched to be dealt with at another time, soon or late, according to the effect the first operation has had, and the subsequent growth that takes place.

In the case of Apples and Pears some twelve years planted and in much too vigorous a condition to bear, I have shortened all the strong roots to within $2\frac{1}{2}$ ft. of the stem, leaving the weaker ones somewhat longer, and all the descending roots found by tunnelling under the balls at a depth of 2 ft. as well, going half round the trees on opposite sides with the best results, going round the remaining portion three years later, each succeeding three or four years going half round them again some 18 in. further away each time, and at the end of a score of years the influence in keeping them within bounds was such that they had not increased in size more than one-fifth above what they were when first the roots were cut in. They were completely studded with fruit spurs all along, bearing profusely when the bloom escaped spring frosts, the bark as clean and healthy as it could be, and when last I saw them they appeared likely to keep on for a lifetime as they did when they first came into bearing. One thing I have remarked is that exceptionally strong-growing varieties which make large trees, like Blenheim Pippin, Wellington, or Bedfordshire Foundling, do not bear their roots cutting in so as to keep them within the size required for such situations without reducing the size of the fruit, and on this account should not be planted in places of this kind. I may say that I have root-pruned with the most satisfactory results in soils as variable as they well could be for Apples and Pears to succeed, from being light and sandy to extremely heavy, but in the latter case drained so as to be sufficiently dry. Root-pruning may be carried out from the latter part of August up to mid-winter, but on no account should it be done after there is the slightest movement in the bud, except any one chooses to see what effect it has, as I have several times done with an odd tree or two, that happened to be of little account.

I have found the end of August and through September the best time for doing the work, causing a very much greater increase of bloom-buds during the ensuing year than deferring it until after the leaves had fallen, with no ill effects on the trees in any way. And as the trees to be so treated are, as a matter of course, in the first instance such as do not bear anything considerable, there need be no hesitation in carrying out the operation early. I once had the roots of a quantity of Apples, that had grown to a height of 12 ft. and as much through, and so strong that few of them had ever formed any fruit-spurs worth taking into account, cut half round in August, the remaining half being cut the year following, and the third autumn every second tree was removed to make more room,

and so little did they feel the removal, which was done with care so as to secure the newly-formed roots as much as possible, that they bore a good half-crop the summer following, the fruit, as might be expected, being somewhat under-sized.

When we hear complaints of trees being injured and refusing to grow for a time after root-pruning, it may fairly be concluded that either the roots have been too severely cut in, the operation carried out too late in the spring, or that the trees were in a condition beyond the power of root-pruning to help them. In fact I have seen trees subjected to this treatment with a view to make them bear, that instead of requiring anything to reduce their strength, were in much more need of something to put vigour into them; and yet upon such grounds the individual who so treated them condemned root-pruning as useless. I feel convinced that in such cases as I have described, where the object is to bring over-vigorous trees into a fruitful condition, and to keep them within certain limits as to size, especially when their roots have access to soil that it becomes necessary to manure heavily for other crops, there is no operation that can with such good effects be employed. I know that some people give a preference to taking up the trees altogether, but this can only be done with advantage when the trees are comparatively small, and where such are wanted it is much better in the case of Apples to plant those that are grafted on dwarfing stocks that will need little or no interference with their roots to keep them within the required size. Young standard trees in orchards, especially where the soil happens to be rich and deep, which frequently go on for years growing too strong to form fruit buds, may often with advantage be brought into bearing much sooner than they would if left to come in of their own accord, by having their roots pruned; one or two operations in their case are enough to bring them to fruiting, after which they will usually keep in a medium state of growth, as the exhausting influence of supporting crops will generally have the effect of checking over-luxuriance. I have so far confined my remarks on the subject to Apples and Pears, with which trees root-pruning is most required, and can with the most certain results be carried out, although Cherries and Plums are amenable to its influence; but in their case it is well not to reduce the roots too much. T. BAINES.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Planting Orchard Trees.—At this season, when planting is being largely carried on, it may be well to warn the inexperienced against the too common practice of planting too thickly. It is an every-day remark that two trees are put in where there is only room for one, yet fresh plantations continually come under notice in which the trees are planted much too thickly. Large, strong-growing kinds of Apples and Pears should stand at least from 25 ft. to 30 ft. apart if the soil is strong; for although many planters say they will cut out the supernumerary trees as soon as they encroach on each other, it is very doubtful whether, if they are producing anything like good crops, they are not left long enough to spoil all before any are removed. A good plan in cultivating orchards is to plant the tall standards at the fullest range they are ever likely to occupy, and to fill the intermediate spaces with dwarf spreading bush trees, as orchards thus treated are sooner remunerative than when they are all planted with standard trees.—J. GROOM, *Linton*.

Keeping Late Grapes.—"J. S. W." tells us (p. 458) that "by giving plenty of ventilation there is no difficulty in preventing Vines from starting into growth before the month of May or even later, and that Black Hamburgs started at this season will mature their fruit by the beginning of October, so as to keep well into January or February." Now, in the first place, Vines maturing both wood and fruit early in October could not, under ordinary conditions, be kept at rest till the latter part of May or, as your correspondent states, even later; and further, as Vines not forced require some six months (more or less, according to the season) to perfect their fruit, it is evident that there would be no ripe Grapes by the time mentioned. Most of your readers, I think, will agree with me that Grapes properly "finished" before the end of September are constitutionally better, and will keep longer than those allowed to drag on into the following month.—THOS. COWPER, *Sumbury Park*.

New Peaches.—Two years ago we planted several dozen young trees of the newer kinds of Peaches, with the view of testing their merits before admitting them under glass. Out of ten kinds planted, the two following varieties, Goshawk and Sea Eagle, have proved of superior excellence, although the past season has been one of the worst on record for the proper ripening of fruit, more especially such a sun-loving subject as the Peach. Goshawk is a beautiful round fruit, of large size, with a skin nearly free from down, and almost entirely suffused with crimson. It ripens in the middle of September, and is of excellent quality. Sea Eagle is a noble Peach, roundish-ovate in form, with a highly-coloured, but rather downy skin, which

will, doubtless, be improved when grown under glass. These two varieties are hardy in constitution, and set fine crops of fruit without protection last spring, when all other kinds on the outside walls failed.—J. ROBERTS, *Gummersburg*.

Gros Colmar Grape.—I was asked repeatedly the other day if the examples of this Grape, which I exhibited at South Kensington, were grown on their own root? Permit me, therefore, to say that they were not. They were grafted on a trusty friend, a fine old Black Hamburgh. The same variety "worked" on Mrs. Pearson is not satisfactory. I have a particular liking to use the Black Hamburgh for a stock. Golden Queen worked on the Black Hamburgh for pot culture last season was equally satisfactory. It is said that grafted Vines degenerate; my own experience is quite the reverse. I have a house of Vines planted twelve months back consisting of the following kinds, viz.:—Gros Colmar, Muscat, and Abercarney Seedling; the latter I like much, and the former shall be fairly tested, both grafted and on its own roots.—R. GILBERT.

Pitmaston Duchess Pear.—This is becoming a very popular Pear; it is a free grower, and produces very fine fruit, rich, and melting. One fault belonging to many of our finest Pears is that they either refuse to grow or produce such weakly wood as to be unable to perfect a crop; but this variety appears to grow well in soils of various descriptions, and I hear it highly spoken of by growers who have all the best varieties from which to select.—J. GROOM, *London*.

Galvanised Wire.—A correspondent in a contemporary is quite woe-begone about his trees being half ruined by being tied to galvanised wires. He is told to tie a twist of matting round the wire as a preventive, but time being money, I say paint the wires in question with two good coats of paint, and the difficulty will vanish at once. This is not theory, but practice.—R. GILBERT.

THE KITCHEN GARDEN.

FORCING VEGETABLES.

Asparagus.—This is perhaps the most important vegetable that is forced during the winter; and there are two ways of forcing it, each having its advantages and disadvantages. The old way, still commonly practised, is to force the plants in the beds where they grow by means of a frame and hot linings. The advantages of this plan are that one has not the trouble of lifting the roots, and, not having been disturbed, the shoots are stronger and finer; and, lastly, the plants are not afterwards lost, as is usually the case with roots lifted to force, because the roots are left in the ground, and, by an alternate system of forcing the beds, they recover again and are soon as good as ever. The objection to the plan of forcing the plants in the open ground is its cumbersomeness; but the answer to this is that the plan is not necessarily so cumbersome as some make it. The usual practice is to grow the plants in beds 4 ft. or 5 ft. wide, with 2 ft. alleys between, which are dug out at the forcing season to the depth of 2 ft. or so, and filled in with fermenting materials, the top of the bed being covered by a frame of some kind. So much labour is not necessary, however, unless it be in the autumn, when the plants start rather reluctantly. The Asparagus does not need a high temperature to make it push quickly, nor is it desirable to subject the roots to much heat, otherwise the tops will be poor and weak and ill-flavoured. It will generally be found sufficient in forcing in the open ground to cover the bed, or part of it, with a shallow frame facing the south if possible, and covered with glass sashes, and lined round the sides with a good thickness—say 2 ft. or 3 ft.—of litter and leaves in even quantities, and also combed over above till the stems appear, when light and sunshine may be admitted both to warm the soil and green the tops a little. During the spring months Asparagus may be easily forced in this way. The tops are a little longer in moving than in the forcing house; but this may be easily provided against by beginning to force a little sooner. It is surprising how very little protection and heat excite Asparagus, Rhubarb, and Seakale into growth after the turn of the year. Seakale begins to push early in the season if the crowns are only protected by a spadeful of litter, and so does Rhubarb. We have gathered stalks of the Early Linnæus in February by putting a barrowful or less of long litter over each stool at the end of October, and Asparagus pushes just about as readily. In forcing the latter in the forcing house by means of hot-pipes or a hotbed, the great point is to get the plants up from the ground with as many good roots as possible, and without mutilation. They should also be taken up in open mild weather, and in prospect of frost two or three batches may be lifted at the same time, and protected by a covering of soil in some cold shed till needed. The roots may be packed pretty closely together in the forcing bed, but carefully, and filled in between and covered

over a few inches with any light loose soil at hand. It is not the culture in the forcing pit that produces firm heads so much as the previous culture in the beds, and care in lifting; but, at the same time, good stools will throw off very weak heads if they are pushed on in a too high temperature. A gentle hotbed of leaves is all that is required, and that only before the new year; afterwards the roots will force freely enough in a temperature of from 55° to 60°, a figure which the bottom heat should not exceed at any time. Asparagus is usually forced in shallow frames set on a 2 ft. or 3 ft. deep bed of leaves; but it may also be forced quite well under a greenhouse stage, in a Peach-house, in a Vinery not long started, or in any structure where the above temperature can be maintained. All the attention which the roots will need will be occasional watering with tepid water.

Seakale.—This vegetable will grow slowly if it be subjected to a temperature slightly above 42°; but it is better to force it in a temperature from 8° to 13° higher. A too high temperature produces long, soft, and woolly stalks which do not cook well; while a low temperature produces stalks that are tough and stringy. About 55° will suit it well. Seakale may be forced early in the open ground by placing an inverted flower pot over each head, and filling in between the pots with stable litter till the pots are quit covered. This generates sufficient heat to excite the plants into growth at any season of the year; and, as the warm days of March and April come on, little more is required than the pots to keep the plants dark, and a slight sprinkling of litter or leaves. By this plan anyone may have a steady supply of Seakale from his garden year after year with little trouble. When a large quantity is required, however, we prefer to force Seakale in the forcing house—in a Mushroom house or underground cellar, for example. The roots, unlike Asparagus, can be lifted without danger, and quickly, and forced with ease and convenience; and they may afterwards be kept for forming fresh plantations in the open ground. The first heads are of course always the strongest and best, and should be cut off close to the crown; but the roots should not be removed, as they will produce another crop of more slender tops, to be sure, but still of a useful sort; sometimes, even excellent, just according to the strength of the roots. We always take two cuttings from our Seakale, and find both useful in the kitchen; and what is to spare we can always sell.

Rhubarb.—Rhubarb roots, if lifted without much injury, and placed in a tolerably warm cellar, or a Mushroom house, or any other dark place where the temperature ranges from 50° to 60°, will soon push and afford a plentiful supply. It is also forced very easily in the open ground. The best plan of forcing the plants where they grow I ever saw was in a garden in the north, where the plants were grown in small plots of sixes, and much closer together than usual. When forced a few stakes were driven in round the plot, and against and between these a wall of fermenting material was packed to a height of about 3 ft. Some Scarlet Runner sticks were then laid across the top, which was covered with mats and a little straw, and that was all. The stalks had room to grow, were plentiful, long, and thick. When it was thought one plot had been forced enough, the materials were moved on to the next plot, and so on; but the same plots were not forced every year. As spring advances a good covering of long litter over the crowns of the plants is sufficient to bring them in a month or six weeks earlier than they would come in the ordinary course of culture.

Chicory.—This is one of the easiest of subjects to force. Its vitality is hardly ever dormant, and it consequently does not want a rest previous to forcing, like the Asparagus or Seakale. A few roots lifted and divested of their green leaves, but without injuring the growing crown, if potted closely together in any ordinary soil or planted in a bed or in a box, or anything convenient, and placed in a cellar where the temperature ranges about 50° to 55°, will produce a good supply of salad for a while; and it is an easy matter to introduce successive supplies of roots as often as needful. I do not know any salad that people having small gardens might grow and force more successfully, and with so little trouble. Wherever Lettuces and Endive are scarce during the winter, fall back on the Chicory; it is equally as good as Lettuce when well blanched, and quite as wholesome. If Mustard and Cress can be grown along with it, all the better. These three make no mean winter salad, and all may be had in quantity by anyone for the trouble of growing them.

Lettuces.—These are usually grown in shallow frames, or under hand-lights or cloches. We prefer shallow frames in this country. Our plants have been planted sometime; the Hardy Hammersmith is the variety used, and the seed is sown in the frame in September or October, in rows about 4 in. asunder, and, as the young plants are always good and tender, the thinnings are used, if necessary, for salad, as long as they last, the main crop plants being left 7 in. apart to heart. They generally last us right through the winter, continuing to grow all the time with scarcely any artificial heat. Let-

tuces will not bear forcing; they will grow, but will not heart, if excited by such means. The Hammersmith grows at a very low temperature. Another way of forcing the Lettuce is to sow the seed in boxes, like Mustard and Cress, and cut over the young seedlings in the same way when about 2 in. high. Such Lettuces are quite tender and good, and I can recommend the plan.

Radishes.—These force easily during the winter. The seed should be sown in a shallow frame, or in boxes or pans, in light soil, and the plants must be thinned out before they crowd each other in the least, otherwise they will not tuber. Two inches between the plants and 4 in. between the rows will be sufficient. The Early Frame is the best sort for forcing.

Carrots.—These succeed under exactly the same conditions as Radishes. The Early French Horn is the best for forcing. A crop of Radishes may be taken off from between the rows before they are much in the way of the Carrots. A temperature of about 55° should be afforded during their growth, and a rather higher figure on sunny days.

Cheese Herbs.—These include Mustard, Cress, young Onions, and Tarragon. The first two require just a word, for, simple as the matter appears to be, plenty fail to maintain a constant supply of Mustard and Cress during the winter months; and the reason is that they give both too much heat. Sow the seed in shallow boxes in light soil, and not so thickly as to let the seeds touch each other; cover very slightly or scarcely at all with fine soil, and lay a board or sheet of brown paper over the box; place it in a temperature of 60° or 65° and water sparingly. In a day or two the seed will vegetate, when the paper should be removed, and the plants exposed to the light. In another day they will be greened and fit to cut, and if the box be removed to a cool dry house, where 45° is maintained, it will keep for a week in usable condition.

Onions are used when just coming through the soil, and before they pass out of the seed stage and get their tops erect; after that they are too old for the purpose. A boxful should be sown about once a fortnight, and treated like Mustard and Cress.

Tarragon.—Green Tarragon can generally be picked out-of-doors till December, but after that it must be forced in pots. The plants to be forced early should be cut down in October, and be lifted carefully, and potted in light, rich soil, and forced in a gentle temperature, such as that of an early Peach house. The plants will force two years in the same pots. In fact, it is the best plan to hold over a few of the old pots for forcing early. It saves the outdoor plantations of Tarragon, which is the most precarious subject belonging to the herb border. J. S. W.

MESSRS. CARTER & CO.'S ROOT SHOW.

THIS took place at the Agricultural Hall, Islington, on the 21st inst., and, notwithstanding the late sunless and otherwise unfavourable season, the show was a large one, and the exhibits were, on the whole, of average quality. The classes for the various prizes offered were well filled, and in most cases there was a keen competition. The classes which were interesting to the gardener more directly were the collections of the various vegetables, including Potatoes, though these formed but a comparatively small item in the exhibition. The best collection of twelve kinds of vegetables was exhibited by Mr. Iggulden, gardener, Orsett Hall, Romford. It consisted of excellent dishes of Reading Onion, Musselburgh Leek, James's Intermediate Carrot, Snowball Turnip, Imperial Brussels Sprouts, Carter's Incomparable Celery, International Kidney Potato, Trophy Tomato, &c. The next best collection, which was also remarkably good, contained some fine examples of excellent culture. There were several other exhibitors in this class, the majority of whom showed good collections. The class for eight dishes of Potatoes brought out several competitors. The first prize was taken by Mr. C. W. Howard. The best varieties shown were Schoolmaster, Grampian, International Kidney, Brownell's Superior, and Snowflake. The second and third collections, too, were very good. The best dish of Improved Magnum Bonum Kidney was shown by Mr. Creed, and the second prize was taken by Mr. Iggulden. Excellent dishes of Onions were shown, the first prize for them being awarded to Mr. E. Thorn. The red and white and yellow kinds of Carrots were well represented, especially the red kinds, the first prize for which was taken by Mr. G. Cole with well-grown roots. The Cabbages shown were Drumhead, very large, the heaviest being from Mr. Grestorex, and the next heaviest from the gardens of the South Metropolitan District Schools. The roots grown on farms were for the most part excellent. Some, such as Carter's Mammoth Red Mangold, weighed nearly 40 lb. The exhibition of roots alone, which extended throughout the entire gallery of the hall, afforded an interesting sight for those interested in such matters.

ANSWERS TO CORRESPONDENTS.

Boronia megastigma.—"M. M." asks (p. 474) how to flower this plant in spring, but does not say what time in spring. All the family are spring-bloomers but this sort does not appear to come in so early as some of them. I have had *B. pinnata*, the finest of all the species, with open flowers upon it from November up to the June following and at its best in May, but during the whole winter and spring it was in a north house with the temperature kept as low as was safe consistent with excluding frost; yet this is lower than any of the family really like, and unless the plants have been exposed for a few weeks in the open air during the latter part of summer, they will be subject to mildew when kept so cool. A night temperature of 40° or 42° will answer for all the kinds, with a slight rise in the daytime with sun-heat; but they, and all plants from the same region, should never be under the influence of fire-heat, except so far as to keep up the temperature above named, as the excess of warmth is sure to induce premature growth before the length of daylight and the amount of air which they can have are such as to give solidity to the growth made, an accompanying consequence would also be that the flowering would be over much earlier than it ought. *B. pinnata*, *B. serrulata*, *B. Drummondii*, *B. elatior*, and *B. megastigma* are all desirable, long-flowering plants that will succeed with similar treatment, but, if any, *B. serrulata* likes a little more warmth than the others in winter.—T. BAINES.

Cloches.—In reply to Mrs. Ricardo's enquiries respecting the use of cloche^s (p. 474), I can assure her that there is nothing in their way equal to these French glass bells, not only for growing Lettuces, Endive, and the like for winter, but also for covering choice little plants of other kinds in winter that need protection. The advantage belonging to their use over that of garden frames for winter Lettuces especially is derivable from the full volume of unobstructed light which they afford, and which any one who has seen the plants growing under them cannot fail to have noticed, as compared with that received by those in wooden frames or brick pits, with their dark sides, only admitting light from above, and which always have the effect of causing whatever is grown in them when of a soft character to be more or less drawn, added to the greater distance which the plants in frames are from the glass overhead, and which tends to a weaker condition of growth. I have used cloches for many purposes, but particularly for Lettuces, Endive, and Radishes in winter and early spring, usually in two rows together, with walking space between them and the next two rows, and room between each set of plants for the glasses to stand when taken off if need be; but for such plants as the above, from the full light which they give, it is seldom necessary to take them off altogether in the winter season. The covering which I used in severe frost was Fern or Gorse laid on in thickness proportionate to the severity of the weather, but from the sturdy character of the plants grown under these glasses, as compared with similar plants in frames, I always found the former able to bear much more frost. It is necessary to keep the covering material on so as to prevent the sun from coming on the glass when the plants are frozen, or they are liable to be so far injured as to be useless.—T. BAINES.

Bones as Manure.—*B.*—Crushed bones or bone meal may be beneficially given to Roses and Carnations. It is best applied to plants growing in beds or borders in spring, say February—and should be sprinkled round the plants, and be lightly forked in. Roses may have more than Carnations, and again strong vigorous plants should have more than weak ones, so no hard and fast line can be laid down as to quantity, but for Roses as much may be sprinkled on the border as will very lightly cover its surface. For pot Roses mix a peck of bonedust with two bushels of soil; half the quantity of bones will be sufficient for Carnations.—E. H.

Grapes Shanking.—*Sub.*—Grapes may shank from one of several causes. First, it may arise from debility through over-cropping; secondly, the roots may have penetrated beyond the border into wet, cold subsoil; and, thirdly, it may and often does arise from drought, although in a season like the last that is not likely. One thing is certain, shanking is due to a lack of support at a critical period, and a part—and sometimes a considerable part—of the crop fails in consequence. The cause must be ascertained before a remedy can be applied, and I should recommend first of all a thorough examination of the border. If the soil is wet, cold, and sour, and the roots in a fibreless, decaying condition, they must be lifted and the border re-made with new soil, improving the drainage.—E. H.

Devonshire.—The fruits were orange-red. Probably yours would turn so if placed in a gentle and dry heat.

Names of Plants.—*B.*—*Callicarpa purpurea.*—*Tenby.*—The *Veronica* is *V. decussata* var. *elliptica*; the other is undeterminable in its present state; send when in flower.—*W. G. D.*—No. 1 we cannot attempt to name from such a scrap; send when in flower; 2, apparently *Kalosanthes coccinea.*—*Anon.*—The Orchid flower sent is *Oncidium dasyle.*—*Amateur.*—The leaves you send are those of *Cissus discolor*, which annually sheds its leaves.—*W. S.*—*Callicarpa purpurea.*—*M. Y.*—1, *Nephradium molle*; 2, *Adiantum tenerum*; 3, *A. hispidulum*; 4, next week.—*Orchids.*—1, *Zygopetalum maxillare*; 2, *Oncidium tigrinum*; 3, apparently a species of *Eria*, send larger specimen; 4, *Sophranitis grandiflora*.—*X. Y. Z.*—1, *Helleborus niger*; 2, *H. abasicus*; 3, *H. niger* major; 4, *H. guttatus*.—*R. Y.*—*Plumbago rosea*; the other is a fine variety of the same, named *superba.*—*Enquirer.*—1, *Goldfussia isophylla*; 2, *Eranthemum pulchellum*.—*M.*—*Colchicum neapolitanum.*—*Decon.*—1, *Adiantum capillus-veneris*; 2, *Asplenium Trichomanes*; 3, *A. monanthemum*; 4, *Ceterach officinarum*; 5, apparently *Woodisia hyperborea.*—*X.*—*Aponogeton distachyon* (the Cape Pond-weed).—*Amateur.*—We cannot undertake to name varieties of *Chrysanthemum*; they should be referred to some specialist. The other plant is *Chrysanthemum frutescens*, but it is not the same species as the ordinary garden kind.—*M. R.*—The fruits you send belong to the Spindle Tree (*Eunymus europæus*). The flower is a species of *Aster* which we cannot recognise.—*S. T.*—*Bouvardia Humboldtii*.

Names of Fruits.—*Pears.*—1, *Fasse Colmar*; 2, *Beurré Superfin.*—*Apples.*—1, *Golden Knob*; 2, *Cox's Orange Pippin.*—*G. W.*—1, *Louise Bonne*; 2, apparently *Colmar d'Été.*—*Apples.*—1, *Lemon Pippin*; 2, *Peasgood's Nonesuch*; 3, *Winter Pearmain.*—*S. M. D.*—The *Baldwin* is one of the kinds of Apple imported largely from America.

Questions.

WILL any reader of THE GARDEN kindly tell me when and where the following trees have borne fruit in Great Britain or Ireland: 1, *Salisburia adiantifolia*; 2, *Taxodium sempervirens*; 3, *Wellingtonia gigantea*; 4, *Glyptostrobus sinensis*? Of No. 1 there is a grand tree at Longleat, and of No. 4 the largest specimen I have seen is the one at Kew.—F. W. B.

Leaves of Camellias Curling.—Will any reader inform me of the cause of the leaves of my Camellias curling? There is a good show of fl. wet-buds, and the plants are in a temperature of from 40° to 50°. AMATEUR.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

LEAFLETS.

Mr. Marnock once told me that he had planted in all no fewer than twelve thousand Cedars of Lebanon in his various landscape gardening operations, that is to say, exclusively in ornamental gardening. I thought of him the other day when looking at the garden front of Wilton House, so stately and so dignified wholly from the use of these Cedars and other hardy trees. It is marvellous how much can be done with a few trees and a carpet of Grass, especially when the "bedding rubbish" is cleared out of sight.

Mr. Frank Miles has, in building his new house at Chelsea, left a large receptacle in the masonry of a balcony for the growth of Lilies, of which he is an enthusiastic grower. This is a capital plan. There is no reason why certain portions of the walls of London houses should not be made hollow, and thereby form an excellent reservoir for plants.

Canon Hole is sunning himself in the beautiful Riviera, a land of lovely gardens and fields, smiling with flowers in the middle of our winter, and which, owing to being snugly tucked in at the foot of the sunny side of the Alps, is, although in France, a far finer winter climate than Italy, or Turkey, or many lands farther south. Here the Roses blow throughout the winter, and all the greenhouse plants have escaped in the open air, so to speak. I am sure the readers of THE GARDEN will rejoice to see his letters from this region of flowers.

Mr. James Backhouse informs me that he grew that noble Antartic Forget-me-not (*Myosotidium*) many years ago, but lost it. It is to be hoped some of the seed sent to me will grow. Perhaps we shall require annual sowings of fresh seed of the plant to secure a continuance of it here, as I believe it is short-lived and probably will not ripen with us.

I see that it has been resolved that on and after the 6th of December Russell Square enclosure should be opened to the public every Saturday and Sunday throughout the year (weather permitting), from two till five o'clock up to the 1st of April, and during the summer months to remain open till eight o'clock every Monday and Wednesday in addition to the above-mentioned days. This is a hopeful sign, and we may perhaps, even in our own day, see these well-closed and well-railed squares open to the public, as in other lands not always supposed to be so enlightened as our own.

Russell Square is a fine open space, and contains some fair trees for London, which it is to be hoped will be saved. But gardening in London has, perhaps, the most distressing variety of the art that is anywhere known. It is, indeed, astonishing in its stupid wastefulness, continually planting, year after year, thousands of evergreens, certain to perish, and while they are perishing digging amongst them to help them on with a stubbornness worthy of some useful work. The line of houses (some of them important ones) on the east side of the Green Park well illustrates the meanness and the absurdity of London gardening, the exception being where a tree like the Plane gets its head above the scene of continual muddling.

I hear that Mr. Burbidge has already made very successful efforts to improve the collection in the College Botanic Garden at Dublin, and that his Orchids are making rapid progress; however, it is as an outdoor garden that one expects this to be rich and great, and there is no soil that I know of which is so conducive to the growth and vigour of hardy plants as that in the garden in question. I remember once seeing there that large and splendid Daffodil (*Narcissus maximus*), almost startling in its proportions, quite a yard high. A complete collection of Narcissi is being formed. I am glad to hear that Mr. John Bain, again in pretty good health, is occasionally seen enjoying a walk round a scene so long that of his labours.

What a home this has been for rare plants for many years, and what a loss it would be to Irish horticulture and Ireland if such a collection were to be destroyed. At one time there were rumours of a proposal to do away with this garden, which happily proved unfounded. It may be questioned if there are any ends to which a university can put its means more desirable than that of supporting a botanic garden. It not only facilitates the study of botany, but has great influence in spreading a love and knowledge of a variety of beautiful plants, shrubs, and trees in the country.

The idea was that one botanic garden was sufficient for Dublin, and so that may be, but the two places are essentially distinct, the soil being very different, and the vegetation also. I fancy this will be made more apparent in the future, Glasnevin having such advantages of glass, and the College garden such a fine soil for herbaceous plants, bulbs, and hardy subjects generally, with the exception of Conifers, for which the air is somewhat unsuited. We may then look forward to pleasant contrasts between the two gardens.

Mr. Burbidge tells me that Mr. Balfe is still very successful with his beautiful New Holland Pitcher-plants and Fly-catchers growing in his sitting-room, also the Killarney Fern in the house. It is to be desired that the practice of cultivating such rare plants would be more general. One hears of a whole flora being cultivated by people in the north of Europe in their rooms. Perhaps it is because our outdoor gardens are enjoyable for such a long time during the year that we do not make so much use of our rooms for cultivating plants. I hope Mr. Balfe will tell us some day how he grows these charming plants indoors.

Referring to the illustration of Longleat in the last GARDEN a friend writes:—"Please turn to Loudon's 'Encyclopædia of Gardening,' ed. 1835, p. 315, and you will see a bird's-eye view of the bare house at Longleat on a plateau of farm land with formal rows and avenues of trees and whole fields of what, when filled with flowers, must be the 'variegated eels, tricolored worms, and glowing tadpoles' of the squire's correspondent now in the Riviera." Happily this is no longer so. This old way was the true one to destroy any beauty or variety a place naturally possessed, or which was added to it in the form of trees. Modern attempts to revive it have been disastrous in their results to the places where they have been tried.

I hear that Mr. George Maw is working very successfully at his Crocus book, which promises to be a very interesting and beautiful one. It will no doubt make these lovely flowers more accessible and better known than they are to a great number of people, and we must all wish Mr. Maw health and strength to work long, and with like success in similar ways.

So Mr. Serjeant Cox is no more. A diligent worker, he was one of those busy men with many cares who amused himself in his few hours of repose with his garden and flowers. He was an enthusiastic Orchid grower, and had a very good collection. He was proprietor of various journals, among others of the *Field* newspaper, which in his hands attained to such a high standing and to such great success. He presided at the annual dinner of the Gardeners' Benevolent Institution.

I had the pleasure of seeing Mr. Bennett's Roses at Stapleford the other day, and, although it was a dull time of the year, I was charmed to see the number of little plants of Tea Roses bearing large and handsome fruit, and all in rather small pots. He has certainly succeeded in seeding the Teas freely, and in raising new kinds should be many years in advance of all others, even if they acquired the same facility in getting the plants to seed.

Mr. William Newton, of Newark, gives me a glowing account of an orchard house he has seen at Drumlanrig, and which he describes as being something most remarkable both as regards building, culture, and the results already obtained. In such a wet climate an orchard house of this type must be delightful and most useful; however, wherever Mr. David Thomson is, there one expects to hear of great things in gardening.

M. Godefroy Lebeuf, of Argenteuil, tells me that he has just received a quantity of seeds of the new hardy rosy *Nymphaea*—a fact which may be interesting to some of my readers who love hardy flowers.

I see that Mr. Meehan says "the Cambridge Garden is a long way ahead of anything of the kind in America." The Bartram Gardens have little to boast of but a few valuable old trees. Fairmount Park has done wonderfully well considering how rarely a body under political influences comes to much. Mr. Shaw's garden, considering that it is the work of one man's lifetime, is a rare monument of success. It could hardly be expected to compete with an old institution like Cambridge. In short, Cambridge well deserves the honour of being the best botanic garden in the United States. No doubt it is so, and yet when I saw it it was a poor ramshackle affair made after the very poor models in Europe, and without a feature of any particular interest. In this respect it differed much from some of the public parks in America, which are quite equal to anything in Europe.

Mr. Peter Barr promises us some charming novelties among bulbous flowers during the coming year, and no doubt he will keep his word—such is his enthusiasm for these plants and such the extent of his collection. The pursuit of science, however, even in the case of the pursuit of flowers, has certain limitations, beyond which it is not very agreeable to pass. When Mr. Barr has to arrange to his satisfaction the synonymy of the species of a neglected family his society should not be sought by those who desire any peace of mind.

One of the reigning beauties exhibits, it is said, a praiseworthy moderation in the use of jewellery and flowers as personal ornaments that might well be imitated by those who make an extravagant use of these for "head dresses" and personal decoration generally. Some ladies' heads are very profusely ornamented with flowers and foliage, and at balls the skirts of their dresses are sometimes over-laden in the same manner. Both look very wretched after exposure to the atmosphere of the drawing room for a short time.

That is a good idea of Mr. Richard Smith, of Worcester—selling Apple trees with Mistletoe growing upon them, and it will take. The Mistletoe is certainly a novelty in the north of England, and more so in Scotland, where it is sometimes cultivated as an interesting object on a lawn. Though it seldom extends or propagates itself naturally there, it grows well when established on the Apple or Thorn, and we have seen it almost usurp possession of the stock in a garden near Edinburgh, where a fine bush of it has been in existence for many years.

Nothing, I am told by an eminent seedsman, amuses the trade more than the prejudices of gardeners on the subject of Hyacinth bulbs. Customers come to the shop and pick out the largest roots only, while others will only have the heaviest and pay no regard to the size. Both, my informant says, are mistaken in thinking they are securing the best blooms by their choice in this way. It is getting much like trying to determine the sex in eggs; but, as a rule, those bulbs which are high in the shoulders produce the best blooms, and it is said that the German bulb growers select these when they wish to produce fine examples of culture. Some of the ugliest and most lumpy-looking bulbs they say do best.

I read in a report of a meeting of the Royal Institute of British Architects, some words of the president, Mr. Charles Barry, which deal with the design for our Crystal Palace:—

"The real Paxtonian roof was not semi-circular at all, but flat, with what is called the ridge and furrow treatment; and the great building from which Sir Joseph Paxton got his fame was designed by him as a series of packing cases, one upon the other, and lessening as they rose, but always, of course, with horizontal lines. It was from my late father's persistent action on the Royal Commissioners for the Exhibition Building of 1851 that with some difficulty he induced them to see that a series of packing boxes did not produce a composition which was all that could be desired, and that it would be partially redeemed from monotony if it had a semi-circular roof over one portion; at any rate, in the centre. Again, when the Exhibition was at an end and the building was removed to Sydenham, he induced the directors of the Crystal Palace Company to extend the semi-circular roofs over the entire nave and transept, but this was only done after another fight, and after my father had shown conclusively from models the great improvement it would be, especially in such a situation. Well, the Crystal Palace directors did at last agree to it. I could not, therefore, allow the semi-circular roof to be called Paxtonian, because if Sir Joseph had been let alone it would not have existed at all, though he cordially approved of its adoption."

In the same paper Mr. John P. Seddon is reported to say, referring to street architecture—"Some of the best examples we have are ridiculously elaborate, and as over architecturesque as the classic parodies of clerestories and triforia turned inside out, for instance, which can only be ludicrous. What we want is simplicity, and the omission of all the false ornament now stuck upon these houses; and until we succeed in these points we shall not have much good street architecture." This appears to me a sensible and much needed remark. Something of the same kind might be said of a good many examples of a certain school of landscape gardening.

"Sanitas" was at one time a cry of Lord Beaconsfield's; and if he will read the article by Lord Middleton in this month's number of the "Nineteenth Century," he will recognise the necessity for pushing forward a stringent Noxious Gases Bill next session. The state of the atmosphere in many parts of the country renders life almost intolerable—vegetation of every sort being destroyed, and the air for miles round thoroughly poisoned. The very moderate bill of last session ought not to have been suffered to "slide" like almost every other Government measure. *Truth* hopes that Mr. Cross will take up the subject in earnest next year. The pollution of our streams is

an evil too, though not so hurtful to vegetation as the pollution of the air.

I passed by Rollisson's once famous nursery at Tooting the other day, and saw the place in such utter ruin as I hope never to see again in the case of any such garden. The auctioneer had been there and left his ugly brand upon everything, even the dwelling houses and sheds, winter gardens, and glasshouses—all were in process of destruction. This nursery was at one time as full of interest as any in the country, and many good men as well as good plants went forth from it.

I see some beautiful specimens of the Newtown Pippin in our markets, and hear also that their culture is gradually extending to districts where they do better than in some of the old localities on the Hudson. I wonder was it a Newtown Emerson grew when he remarked one day, pointing to the pride of his orchard:—"That Appletree is worth more than my head to me. My income from the former is worth more than all my books to me."

Speaking of garden labels and tombstones I was amused the other day to see some of the old labels in Kensington Gardens which were really much larger than many grave-marks in certain cemeteries, being over 1 ft. across the face. There is thus room for fine bits of botanical pedantry on them, and they are mostly adorned with such an expression as "a Juglandaceous Tree." Mr. Gibson ought to look to this. He has a very good form of T iron label.

It is curious to observe the difference of taste exhibited by professed critics, and judges of florist's flowers, and the general public, more especially regarding Chrysanthemums. "What beautiful flowers!" said a lady lately at an exhibition of these flowers, admiring some large and rather loose blooms of what judges would reckon "coarse" varieties, "they are like ostrich feathers!" "I like these great woolly ones!" observed another lady, and numerous observations of the same kind showed that the ladies and the judges were anything but agreed on the "points" of excellence.

Probably the florist is to a certain extent right in his judgment of what constitutes a perfect flower; but those who admire flowers for their own intrinsic beauty, and are not trammelled by "recognised standards," sometimes see points of beauty that the critic in his artificial and severe notions of perfection may overlook. I observe that the judges of Chrysanthemums feel the blooms with their fingers very carefully, much in the same manner as a judge does a fat beast, and gives preference to those blooms that feel close and solid, and if the petals are all packed densely upon each other, as if pasted together, forming a ball of that peculiarly inartistic outline that denotes the highest art of the "dresser," it enhances the value of the flower.

A correspondent asks if my remarks in last week's "Leaflets" upon the subject of Chrysanthemums prepared for flower shows would not apply with equal force to exhibition flowers in general. The Azaleas, Pelargoniums, and even some of the Orchids are all open to the same objection, the prizes being generally awarded to those plants which most nearly resemble a decorated balloon, and the florist or amateur who has the oldest plant can generally win. If the judges were at liberty to award the prize to any plant which was the finest specimen grown in the natural way, so as to exhibit its beauties of leaf and form, as well as of flowers, we should gain in every way; and many true florists would

enter the lists who are at present debarred by the barbarous custom now in fashion.

The President of the Statistical Society (Mr. T. Brassey), in his opening address the other day, said: "The acreage of fruit land increased in England from 153,277 acres, in 1877, to 159,095 in 1878. Not a bad increase for one year, but the want of system in the work and the lack of preparation of the land often leads to indifferent results." The speaker then went on to say, and most people will agree with him, that the heavy outlay at the commencement, and the absence of any definite right with regard to compensation to tenants acts as a check to first-class fruit-culture. Men possessed of skill and capital will not plant for others to reap the crop.

A correspondent writes, "I often wonder why more care is not exercised in reading the proofs of some of our gardening papers. Only the other week one of the greater lights of the horticultural world called especial attention to *Trichonema suavis* as a pretty sweet-scented Orchid. If *Trichonema* was meant it is not an Orchid at all; but most likely the plant referred to was *Trichosma suavis*, which is an Orchid, and pretty, and sweet. Not long ago I saw the common Tuberose mentioned with the scientific (!) name *Polyanthus tuberosa* tacked on to it; shortly afterwards an unsophisticated amateur wrote me to ask if it could possibly be true that the Tuberose was a *Polyanthus*. I told him that although a Tuberose by any other name would smell as sweet, its proper name was *Polianthes tuberosa*, and that it was nearer a Lily than a Primula." I hope my correspondent has made sufficient allowance for the pressure more or less attendant on journalistic work.

GARDENING ILLUSTRATED is the most remarkable success of the year in its own way. I see it everywhere I go in distant parts of the country, as well as in the most unlikely places in London. It is the first thing of the kind that has really touched the great public as well as the specialist. Apart, however, from its mere success it is satisfactory to know that good practical information is brought by it into many thousands of houses. No such rapid success has ever been witnessed before in any journal of the kind, and it is a mistake to suppose that its success is owing to its cheapness, as more than one has been published at the same price before.

I read of a Texan river; its chief ornament is the beautiful Cypress (*Taxodium distichum*), 80 ft. to 150 ft. high, and 5 ft. to 10 ft. in diameter, a tree which likes to stand near the water, and to send its roots into it. The Cypress trees often stand so close as apparently to form a solid mass of trunks, and the tops to form a solid roof across the river. This is the tree of which there are such remarkable examples at Syon, and which, considering its great beauty and singularity, it is astonishing it is not made a more artistic use of in gardens and parks. A well-placed group would in time be superb. The effect of the Cypress woods is wierd and striking in the extreme.

"Mrs. Grant says that the General once lost all his money in a Potato speculation. He paid 750 dols. for 150 bushels of new kinds, planted them, expecting to make a large profit, but when they were ripe, Potatoes were too cheap to pay for the digging." It is to be hoped that the advent of new kinds among us is not attended with such sad results.

JUSTICIA.

Country Seats.—We shall next week publish a fine engraving and full account of Golder's Hill, the residence of Mr. Spencer Wells, perhaps the most beautiful garden, as regards design, in or near London.

THE INDOOR GARDEN.

JAPANESE CHRYSANTHEMUMS.

WHEN Mr. Fortune introduced his first batch of Japanese Chrysanthemums, and they were seen at one of the meetings of the Royal Horticultural Society, they took everyone by surprise. It was while at Yeddo, in the autumn of 1860, that Mr. Fortune saw for the first time the peculiar forms of this flower which are cultivated in Japanese gardens, and he collected about thirty different varieties. During their progress home to England a number of these were lost. The late Mr. John Salter, of Hammersmith, was the first to obtain seed from them, and the plants obtained from this were found to reproduce, as Mr. Douglas states (p. 492), nearly all the varieties lost on their transit to this country. Mr. Fortune was led to think that in course of time all the remarkable varieties of the Chrysanthemum seen by him in the gardens at Yeddo, and probably many more, would be reproduced from the seed of the few kinds which he brought home to England: and he has lived to see this realised. I have just referred to a Continental plant catalogue, and found it to contain

if it were desired to have dwarf plants. Notwithstanding this tendency to grow tall, Japanese Chrysanthemums make excellent conservatory plants, and are to be recommended as such. The great variety of form found in this section makes them better adapted for general decorative purposes than the more formal incurved varieties, which show little change in the matter of shape. The fact that they bloom late is an objection sometimes urged against these Chrysanthemums, but some, at least, of the newer varieties flower earlier than the forms first introduced, and when properly managed can be had in bloom sooner than is generally supposed. But their late character is not without its advantages, one of these being that the Chrysanthemum bloom is prolonged to a much greater length, as it is stated some of them will not expand their flowers till near upon Christmas. But the house that contains the plants should be a structure artificially heated if the flowers are to be preserved from two damaging causes, wet and cold.

It is well to start early in the season with these Japanese Chrysanthemums, to grow them on fast and well into size, but not to draw them, giving them rich soil and every encouragement to make a vigorous growth. Whether two or three, or eight or ten flowering



Odontoglossum Londesboroughianum.

nearly 100 kinds. Some of the newer varieties that have been seen this season are remarkable for their fine characters. Especial mention can be made of Madame Lemoine, rosy lilac, large, full and handsome in flower; Fulton, rich bright golden yellow, very fine; luteum striatum, pale gold, with a cinnamon reverse to the florets; Mon. Ardenne, clear pink, very large and handsome; Oracle, large lilac-pink, extra fine; Ville de Hayne, orange cinnamon, with a golden reverse to the incurved petals; Orphée, reddish crimson, fine in colour; Mons. Crousse, orange red, with a golden reverse, very fine; and Reine des Beauties, fine crimson.

Of the older varieties James Salter is one of the best and most useful, flowering freely; Gloire de Toulouse, rosy-purple; Red Dragon, Fulgore, Fair Maid of Guernsey, Elaine, Harlequin, Sarnia, white, striped with pink; Peter the Great, rich yellow; Magnum Bonum, bright lilac, very fine; Beauté Parfaite, light rose; Dr. Masters, extra fine; M. Delaux and Cry Kang are all good. This by no means exhausts the list of good varieties, but it serves to indicate a fine and select collection.

Many object to the Japanese Chrysanthemum on account of its tall growth and lateness in flowering. But all are not so exceptionally tall growing, and a few days since I saw some pretty dwarf plants of James Salter, where the stems had been twisted round and tied to stakes, thus forming fine specimens carrying good heads of bloom. Other varieties, no doubt, could be similarly grown

stems be left to a plant, each should carry but one flower, all the other buds being removed. This is the way to have fine blooms, and growers feed with liquid manure or other stimulants, so as to secure size in the flowers and richness in the colouring. At a Chrysanthemum show the general public are always found crowding about the stands of cut blooms of these unique Japanese varieties.

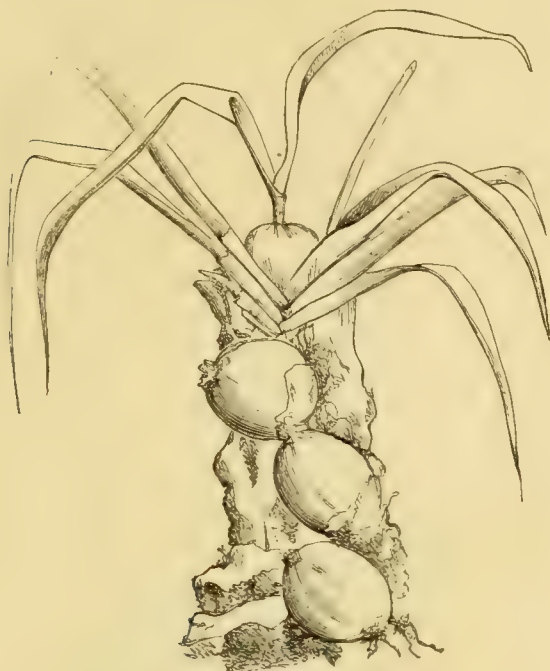
R. D.

ODONTOGLOSSUM LONDESBOROUGHIANUM.

THIS is one of the most distinct species of a peculiarly attractive genus, and its beauty is such as to make it a welcome addition to all good collections of Orchids. It was introduced from Mexico by Messrs. Backhouse & Son, of York, about thirteen years ago, and first flowered in the Londesborough collection about ten years afterwards. Mr. Denning exhibited a plant of it in flower at the Royal Horticultural Society's meeting on Dec. 6, 1876, when a first-class certificate was awarded to it as a desirable new decorative plant. Mr. Denning, who first succeeded in blooming this species, informed me at the time that it has a singular habit of shedding its foliage, so much so, indeed, that it might almost be termed deciduous, and that it grows well in an intermediate temperature along with Lycastes and Zygopetalums. The pale green, glossy, pseudo-bulbs are borne at intervals along a stout rhizome, and are roundish-ovate,

supported at the base by five or six long, sheathing leaves. Each young bulb bears one or two leaves at its apex, as shown in the accompanying sketch, which conveys an accurate idea of its elongated growth.

The plant as first exhibited bore a long drooping spike over 2 ft. in length and bearing two or three fully expanded flowers and nine



O. Londesboroughianum, showing habit of plant.

or ten buds. The inflorescence was a simple one, but more recently a plant at Burford Lodge, Dorking, bore a branched spike of thirty fine gold-lipped flowers. Our engraving was made from a plant which bloomed at Messrs. James Veitch & Son's nursery at Chelsea, during the past month. The sepals and petals are nearly equal, are cucullate with undulated margins, and are of a pale gamboge yellow, having concentric reddish-brown bars. The reniform lip is over an inch in diameter and of a clear golden yellow in the type, but Messrs. Backhouse & Son have recently sent us a



O. Londesboroughianum var. *pardinum*.

flower, rather larger than usual, in which the lip is profusely dotted with brownish-crimson, as suggested in the accompanying illustration. This variety, it is proposed, shall be called "*pardinum*," a name which is sufficient to distinguish it from the less heavily barred type. The column is curiously curved like a swan's neck, and is devoid of the auricles so usually found at the apex of the column in *Odontoglossums*. The whole aspect, and especially the bright golden tints of the flowers, and

their brownish-crimson markings, is singularly like that of some of the larger-flowered *Oncids*, and in point of beauty it may be compared with *Oncidium varicosum* or *O. tigrinum*. In its native habitat this plant is said to be found "growing on unshaded rocks, the temperature in the dry season being 110° by day, descending to 55° at night"; in fact, a Red Sea broiling heat, and a cool night temperature within the twenty-four hours. Growing, as the plant is said to do, on sunny rocks, its rambling habit of growth doubtless enables it to find fresh rooting surfaces—a change of soil or feeding ground in fact—highly essential to its welfare. Its rocky habitat, and the scorching sun-heat to which it has been subjected "at home" may also account for its deciduous tendency, just as the *Phalanopsis Lowi*, which grows on sunburnt limestone rocks in Moulmein, is also deciduous, and doubtless from the same cause. Some African *Angraecums*, which grow in similar dry and sun-scorched places, actually fail to produce any leaves, and trust entirely to their broad, handsome roots in which chlorophyll or "leaf-green" is developed; and the plant is thereby enabled to carry out its functions without true foliaceous organs, which, though a rare occurrence in *Orchids*, is commonly the case in *Cactuses* and *Euphorbias*. Although the plant is thus sunburnt, I have no doubt that its long roots find shelter, in clefts and crannies of the rock, or among leaves and *débris*, where they are comparatively cool and moist. Its habit of growth is rather awkward to manage, and perhaps the best plan with this and similar rhizomatous species is to fix them on a board, so as to afford their stems support, a little peat and *Sphagnum* being provided for their root growth. Any little extra trouble with this plant will be amply repaid if the result gained be its fine golden flowers.

F. W. B.

PALMS IN FRUIT AT KEW.

MOST of the vigorous-growing Palms reach too great a stature to be retained in the majority of plant houses until they arrive at the adult state; consequently we rarely see them in fruit, or form a correct idea of the dimensions they assume when allowed unlimited space, unless we see them in their native habitat, or visit the large glass structures devoted to their culture in some of our leading horticultural establishments. On a recent visit to Kew Gardens, we noticed an unusual number both in flower and in fruit, which induced us to make the following notes, which may be interesting to our readers, especially to those who only know our best Palms as small pot plants. In the Palm House, on the west side, beneath the dome, the great Fan Palm (*Sabal umbraculifera*), a tree some 30 ft. in height, with a stem 15 in. in thickness, bears an immense loose cluster or spadix of berries in the green state, measuring not less than 4 ft. in length, which might be taken for a huge bunch of the Royal Muscadine Grape, with its shoulders looped up by lying over the adjacent leaf-stalks. The berries are less than 1 in. in length, and of a glaucous green, sparingly distributed on some of the twigs, but so thick on others as to appear as if fused into a solid mass. In the axil of a leaf a little below this the remnants of an old cluster was seen with jet-black berries. Had this Palm a more elegant habit in the young state, such a yield of seeds as this would have been of great value.

Beneath this, one of Wallich's Palms (*Wallichia tremula*), a plant with as yet no evident stem and several tall pinnate leaves, bears a branched drooping spadix about 2 ft. in length, with its point touching the ground, the branches of which are thickly studded with oblong coral-red berries, varying in size from $\frac{1}{4}$ in. to 1 in. in length. So rarely do any of this genus fruit that this must be considered a novelty. Very near to the Sabal, and on the same bed, a noble specimen of the Chinese *Livistona* (*Livistona chinensis*, synonymous with *Lantania borbonica*) carries two large spadices of fruit, which are given off just above the lowest leaves, and, having a stouter axis than the Sabal cluster, they stand out boldly from the trunk. The berries are about 1 in. in length, and taper to both ends, and in colour some appear to be grey while others are of a bright bluish-green. This tree is between 40 ft. and 50 ft. in height with a spreading crown of foliage. In a young state this is probably the best known of the Fan Palms. Close by is the finest specimen of Bauer's Palm (*Areca Baueri*) we have seen, rising to the height of 25 ft., with three spadices projecting from the stem, just below the leaves, in various stages of development. The largest berries are roundish, about $\frac{1}{2}$ in. in length, with a bright green skin and a black point; these ultimately become scarlet. The branches of the spadix show deep pits where the male and abortive female flowers have fallen away. Beneath this a slender-stemmed Palm, named *Synechanthus fibrosus*, with an elegant head of pinnate leaves, also bears three spadices—one bursting its sheath, another a little more advanced, and the oldest with both green and scarlet fruits, that appear to have reached their maximum size, about 1 in. in length, and in form oblong or ovate.

Next we came to a good specimen of the East Indian Wild Date (*Phoenix sylvestris*) with a stem 30 ft. or more in height, and about a score of spadices rising among the glaucous green foliage. These spadices have long flat stalks and heads like Grass whisks, with the twigs ornamented with oblong scarlet berries, which constitute the wild Dates. Near the central pathway a specimen of the singular spiny-fruited Palm (*Astrocaryum rostratum*) was seen with two erect spadices with the spathe or sheath arching over the male flowers, which appeared to have been dead some time, but the curious structure still remained and probably the mature fruits concealed within. A much larger specimen is growing near the north staircase with similar spadices. Within a short distance of this rises the Wine Palm (*Caryota urens*), the tallest tree in the building, over 60 ft. in height, carrying two spadices with recurved stems, the uppermost of which is fully developed and the lower in the act of bursting its spathe, and in the axil of a leaf lower down a third spadix is showing. The expanded one resembles an enormous tassel, and must be at least 6 ft. in length, with innumerable necklace-like strings of green flower-buds. This retrograde mode of flowering is characteristic of the *Caryotas* and *Arengas*. They grow rapidly until they reach maturity, but not necessarily their maximum size, as that depends chiefly on the supply of nourishment. When an inflorescence, which includes the spadix and its sheath, terminates the growing point and arrests further growth in that direction, they then produce spadices in succession from the axils of the leaves from the summit downwards until the supply is exhausted, when they die. *Opposite to this on the north side of the dome, and towering above the other Palms, the elegant *Seaforthia* (*Seaforthia elegans*) supports a majestic crown of foliage upon a straight cylindrical trunk between 30 ft. and 40 ft. in height, and just beneath the lowest leaf sheath three large branching spadices of different ages with slender drooping white branchlets and green berries. This fringe of white produces a fine effect, standing out, as it does, in bold relief from the rich green foliage of the Bamboo in the background. On the adjoining bed the Excelsior Fan Palm (*Thrinax excelsa*), a dwarf tree with silvery radiate leaves, bears a panicle drooping spadix, retaining a few round white berries, the larger part having fallen.

Close by, the New Zealand Cabbage Palm (*Areca sapida*), produces three short branching spadices, similar to those of Bauer's Palm, but much less, with conical, bright green berries. In the north wing of the house, the Spreading *Ptychosperma* (*Ptychosperma patula*), a dwarf, ornamental Palm, is an attractive object by reason of its richly coloured spadices, which are produced below the leaves as in the *Areca* and *Seaforthia*. The oldest of the spadices has coral-red branches, with a row of oval yellow berries on each side; the younger ones becoming coloured. Other Palms were also showing their inflorescence, viz.:—Cuming's *Caryota* (*Caryota Cumingi*), a dwarf Palm just projecting its terminal spadix; the fur-leaved *Caryota* (*Caryota furfuracea*), rather less than the latter with its terminal spadix opening; and the *Caryota*-leaved *Martinezia* (*Martinezia caryotefolia*), a slender spiny-stemmed Palm, somewhat like the *Astrocaryum*, but instead of its spadix being surrounded by a hood-like spathe, it is enclosed within a long, flat pod-like sheath. In the Aroid house, which is devoted to Aroids and shade-loving Palms, such as *Calami* and *Chamædoreas*, we noticed specimens of the graceful glaucous-leaved *Chamædorea* (*C. glaucifolia*), of both sexes, bearing spadices which were quite as fragile as the foliage; the cross-leaved *Chamædorea* (*C. crucifolia*), with its slender 20 ft. stem, surmounted with a crown of Grass-like foliage, and five drooping male spadices; Hartweg's *Chamædorea* (*C. Hartwegi*), with flowering spadices of both sexes; Sature's *Chamædorea* (*C. Sartori*), with spadices of both sexes in various stages of flowering; Decker's *Chamædorea* (*C. Deckeriana* or *Morenia Deckeriana*), with female spadices; the elegant *Chamædorea* (*C. elegans*) and the small-leaved *Chamædorea* (*C. microphylla*), both with female spadices; but the most remarkable were two female spadices of *Chamædorea Ernesti-Augusti*; these were simple bright scarlet rods, which rose 2 ft. or so above the dark green leaves, with deep pits, and a few adherent blue berries. The male spadix has a very different appearance, being finely branched, and bearing numerous minute yellow flowers. The *Chamædoreas* have the sexes on different individuals, the male spadices have a drooping habit, while the female spadices are more erect, with a stouter axis.

There were also several Rattan Cane Palms (*Calamus*) in fruit. In these the axis of the spadix becomes elongated into a long spiny whip-like appendage, called *flagellum*, so as to place its branches at some distance apart. *C. viminalis*, *C. leptospadix*, *C. erectus*, and *C. pachystemonus* showed this structure remarkably well; the appendage of *C. erectus* was some 15 ft. or so in length; the fruits which were borne by *C. pachystemonus* were about the size of Peas.

To the student of botany or horticulture these fruiting Palms should be of great interest as affording examples of the fruits of four of the principal divisions of the Palm family, which include eighty

per cent. of the Palms that are to be found in our gardens. The *Areca* tribe is well represented by *Seaforthia*, *Caryota*, and *Chamædorea*; the *Calamus* tribe by *Calamus*; the *Corypha* tribe by *Phoenix*, *Sabal*, and *Livistona*; and the *Coco* tribe by *Astrocaryum*, and *Martinezia*. The *Borassus* tribe, which is not represented in fruit, includes *Latania* and *Geonoma*. G.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Hardy v. Tender Plants.—A great many of our most popular cultivated plants have only a fictitious value, which they maintain just as long as they are dear or difficult to grow, and gardeners and professed cultivators lend themselves to the deception more than any other class; ordinary people who love flowers for their own sake distinguish more clearly in such matters. Many of our so-called "fine" stove plants and Orchids are positively inferior to some of our commonest hardy border plants that not long ago were in danger of being lost through the indifference of cultivators. If the old *Coleus Verschaffelti* had only been a difficult subject to cultivate, and still selling at a guinea a piece, it would yet have been a much-admired plant, whereas it is now disregarded; and the same could be said of many other things. The much-lauded *Gardenia* is inferior to a good *Pink* or *Carnation*, and cannot approach a *Rose*; but some spend as much on its special culture as would keep a small garden, chiefly because it is rather hard to cultivate successfully. That popular Orchid *Calanthe Veitchi* cannot equal a good *Pentstemon* or a *Snapdragon*; but the roots sell for a guinea or more, and it is an Orchid, and hence admired. Its neighbour *C. veratrifolia* is inferior to a good white *Phlox*, but it is also an Orchid; a good plant would probably fetch £5 in the market, and it is revered accordingly; on a herbaceous border it would look positively insignificant. Not a few of our most noted stove and greenhouse shrubs are inferior to a *Flowering Currant* or a *Deutzia*, but the one is admitted to the drawing-room and the other is not. The *Bougainvillea* cannot compare with *Paul's Scarlet Thorn* or the *Pyrus Malus floribunda*, but gardeners adore the former and take no particular notice of the latter. The *Bougainvillea* will, however, get out of favour if everybody gets to understand its culture. These are only a few examples of a false taste that is not creditable to us.—J. S. W.

Browallia elata.—It is not a little surprising that the value of this plant, briefly alluded to in *THE GARDEN* (p. 471), has not been more generally recognised. If I am rightly informed it was introduced into this country from Peru in 1768, consequently is very far from being a novelty; yet it is seldom seen, especially grown as a pot plant for winter work. Its requirements are few and of the simplest description. We sow the seed thinly in pans any time during April, and it readily vegetates in a gentle heat. The seedlings are potted off singly into small 3-in. pots when large enough to handle, and returned to gentle heat till established, after which they are transferred to a cold pit or frame. After a few days they are pinched hard back, and when commencing to grow afresh they are shifted into 5-in. pots, the size in which they are to flower. Any common soil will suit them; we usually employ turfy loam with a little rotten manure and sand. During the summer months no covering is needed for them, but they are kept regularly watered and pinched back till a good head is formed, discontinuing the latter operation early in August. They are housed in September in common with many other plants, some being put into an intermediate house, to be followed later on by those put into a cool house, the object in view being to keep up an unbroken succession, as they do not flower well under cool treatment. With the help of liquid manure they can be had in bloom throughout the winter and spring months. We grow them principally for cutting purposes, the brightness of their small blue flowers rendering them very suitable for lightening up vases, &c. It is best when cutting to clear off one or more plants as required, and these will soon push out another supply. Has any of the readers of *THE GARDEN* grown the white variety, *Browallia elata alba*?—AN ESSEX CULTIVATOR.

Azolla caroliniana.—This charming water plant, allied to *Salvinia*, should become a favourite for indoor aquaria. It floats on water quite free of soil, sending down roots as the *Water Lettuce* (*Pistia stratiotes*) of tropical countries does, and, compared with that, it is much more easily cultivated in a moderate temperature. The tufts of delicate green leaves appear like tiny emeralds, and massed together form one of the choicest of jewels. At this season it requires all the light it can have, and should be near the glass in a moderately dry atmosphere. With the light of summer, no degree of atmospheric humidity appears to injure it, but now, during dull weather, with an excess of moisture, it dies off. All the living points must be carefully picked from the dead parts behind, and should be placed in clean water on which to float. A bell-glass is the most convenient

vessel in which to keep it, and if placed in a frame warmed with a pipe or in a greenhouse it will quickly revive. During summer it will grow out-of-doors, but then it becomes bronzed, and perhaps it is prettier when light green, as it is in the greenhouse or window. —L.

Standard Chrysanthemums.—Looking over the Richmond Show, held at the Castle Hotel on the 18th ult., I was much struck with the beauty and elegance of the standard Pompon Chrysanthemums, displaying, as they did, large heads of flower with a minimum of close training. For this purpose the larger Pompon section seems to be specially adapted. A fine head of Julie Lagravère, very telling as it is in the daytime, is a glow of rich crimson by gaslight. The chief drawback to standards is the bare stems, but a few Ferns or other fine-foliaged plants would make for them a capital hiding-place. The stiff, formal, trained show specimens are an abhorrence, but these semi-trained standard heads peeping out from a mass of Fern greenery are really beautiful.—A. D.

Marigolds Indoors (p. 453).—I can strongly recommend these for growing in pots for the embellishment of greenhouses and conservatories at this season. We have several varieties now in flower, which, interspersed with Chrysanthemums, Salvias, Eupatoriums, Schizostylis, late Pelargoniums, &c., have a most telling effect, affording, as they do, such a striking contrast in colour. The one in most favour here is Dean's Dwarf Yellow, which has medium-sized blooms; and these the plants put forth in the greatest profusion, and, not being large, they are most useful for cutting. As



Marigold "Meteor."

is the case with most soft-wooded subjects of a kindred nature, Marigolds do best planted out in a sunny position, where they can be kept well watered and attended to by way of stopping the shoots, and then lifted and potted up in the autumn, when, if kept for a week or so in a cold close frame, and heavily syringed, they soon get hold of the fresh soil and scarcely feel the removal. Grown and treated in this way, they are not anything like the trouble they are when confined to pots the whole season, involving, as they do during a dry time, much labour in watering.—S. D. [The above illustration represents a pretty variety of Marigold called Meteor, in which the florets are pale lemon edged with deep orange, colours which render it very effective. It has been exhibited at South Kensington two or three times lately. For the opportunity of figuring it we are indebted to Mr. H. Cannell, of Swanley.]

Standard Pelargoniums.—"A. D." (p. 459) strongly recommends these, and at the same time deprecates stiff and formal training. Now, according to my idea, a standard Rose, standard Chrysanthemum, or a standard Pelargonium, mounted on a long bare stem, is about the most unnatural object with which we have to deal now-a-days. Why should we disagree with the Japanese, as regards their dwarfing noble trees and shrubs, and yet hold up to admiration an equally absurd mode of culture? I am myself a great admirer of the Pelargonium family, and agree with "A. D." that the old Unique, and all the Ivy-leaf section are beautiful objects for indoor decoration, but I trust that neither he nor any other admirer of them will endeavour to revive the standard form of growing them; they are, as he remarks, beautiful in hanging baskets, and I may also add as pillar or wall plants, or for garnishing the edges of plant stages; but deliver us from the standard form of Pelargonium, except as a curiosity.—J. G. L.

Bouvardias at Clapton.—For winter flowering more healthy and luxuriant plants than those now coming into bloom at Messrs. Low's nursery it would be difficult to find, the foliage being broad and lustrous, the wood vigorous and well set with bloom, the general appearance of the plants denoting that throughout the growing season they must have been in the enjoyment of all the conditions necessary to perfect development. The unusual luxuriance of the plants in question would favour the belief that they must have been planted out during the summer months. Such is, however, not the fact; on the contrary, they were shifted on in the ordinary manner, and the pots are now crammed with healthy roots. Plants thus established are, for many reasons, preferred at Messrs. Low's to those which have to be potted up at a late period. It is commonly supposed that only by means of planting out can Bouvardias of first-class quality be grown; but the plants in question afford ample proof that such a practice is by no means necessary. In the case of all plants destined for winter flowering it is undoubtedly a great advantage to have the pots well filled with roots by the end of the growing season; and it is certain that, if this advantage can be obtained without in any way detracting from the luxuriance of the plants, planting out is a mistake. First-class blooms can only be produced by plants having a potful of roots in a healthy condition. When, therefore, the soil is matted with fibres, and development during the winter months is assisted by constant gentle warmth and free ventilation on favourable occasions, there can be but little doubt as to the result. The Bouvardia, like the Cyclamen, appears to luxuriate during the dull months of the year in a warm equable temperature, where it may at the same time be in the enjoyment of a free circulation of air. On the occasion of my visit to Messrs. Low's, the air was by no means warm, but the ventilators were open, and the pipes being gently heated, a light buoyant atmosphere was created, highly favourable to the development of the flower-heads and the expansion of the individual blooms.—J. CORNHILL.

THE KITCHEN GARDEN.

THE CHAMPION POTATO.

MR. SYME, of the Lawson Seed and Nursery Company, says—"The Champion Potato has been most appropriately named for, in Scotland at all events, it has thoroughly beaten every other variety in disease-resisting properties, and has lately been lifted at the rate of 10 to 12 tons an imperial acre, grown as an ordinary field crop. Having paid much attention to the Champion since it first appeared, I can fully endorse all that has been said in its praise, and certainly the past unfavourable season has proved it to be the most valuable introduction of the past few years. It originally came from Forfarshire, and, after trial, was recommended in the Lawson Seed List of 1875. In general appearance it comes between the Scotch Regent and the Irish Rock, embodying the good qualities of the former and the hardy constitution of the latter. Like other Potatoes its eating quality varies according to circumstances as regards soil, climate, and cultivation, but it may safely be classed among good table sorts. Those which we are using at home daily are pronounced by every body to be first class. The Champion is a strong rank grower, and should be allowed a fourth more space at least than that which ordinary kinds require in planting. It is, perhaps, the latest field Potato to ripen, the haulm remaining fresh when that of all others is withered. It should, consequently, be planted earlier than is usual for late sorts generally in order to do it justice. It will grow remarkably well on poor soils where other kinds would not succeed, and altogether it is highly recommended for a main crop in every garden and farm; it cannot, however, be too prominently kept in view that to fortify its disease-resisting character a thorough change of seed is necessary."

The Jerusalem Artichoke.—The scarcity of Potatoes will, in all probability, have the effect of again calling attention to this Artichoke as a substitute for them. Many objections have been urged against the Jerusalem Artichoke as a table esculent, on the ground of its watery character; but might not this be traced to some

extent to what might be termed the injudicious cultivation to which the plant is subjected? As a general rule, it is planted in an out-of-the-way part of the garden, in a shady and damp place, and has but little cultivation in the way of securing a good crop of fine tubers. This haphazard method can scarcely be conducive to the production of good tubers, and they may suffer in quality in consequence. The Jerusalem Artichoke will grow in almost any soil or situation, and in these respects it is a very accommodating plant; but as an old gardener once remarked, "To have fine roots it should be set in a rich mellow loam, in an open, airy part of the garden." He further recommended that, if the roots be large, they should be cut into sets, much as Potatoes are, each part to contain at least two eyes; and at any time during the month of March they should be planted in trenches, about 3 in. or 4 in. below the surface, the lines 2 ft. apart, and the sets 18 in. or so from each other in the rows. A good mellow loam, in his opinion, needed but little manure for the first crop, as they would be even in size, though by no means small, and of better table quality. When planted in this way, the stems will appear above ground by the beginning of May, when, as is usually the case with kitchen garden crops, a little earth should be drawn up to the stems and the ground kept clear from weeds. It is a very prolific vegetable, and a small piece of ground able to sustain the crop will produce a large quantity of tubers. By the beginning of November the stems wither, and they should be cut off to within a few inches of the ground; the tubers can then be dug up and stored, much in the way Potatoes are, or, as is commonly practised, they can remain in the ground and lifted as wanted. Opinions certainly do differ as to the table quality of this esculent; but as a modern writer remarks: "Strange as it seems, in those establishments where the best cooks are employed, this vegetable is almost invariably extensively used, and we have the strange phenomenon (in this country) of the richest families using the greatest quantities of the cheapest vegetables that can be grown. Such evidence as this, therefore, affords us ample excuse for endeavouring to induce the most prejudiced to give the plant a fair trial, feeling assured that sooner or later it must become, and especially among cottagers, a product of prime importance." Sometimes, at horticultural exhibitions, those who are called upon to award prizes to collections of vegetables look upon the presence of this Jerusalem as a weakening item; but if the tubers are of good size, even in shape, and handsome in appearance, they should carry the same weight as a good dish of Potatoes; and it is not fair for judges, as they sometimes do, to condemn an esculent simply because they do not care for it as an article of food.—R. D.

Wood Ashes and their Uses.—During the past year we have had ample means of testing the value of wood ashes or charred earth, both as a means of warding off the attacks of slugs and other garden pests from tender vegetables, and as a means of enriching the soil and consequently accelerating growth. I believe that the old remedy, fresh slacked lime, if used in excess, is positively injurious to some crops, and after it has lain on the damp soil a short period it loses its burning character, and then slugs pass over it with impunity. We have therefore been compelled to use ashes of every kind, but more especially those from wood fires; and now we convert every kind of garden rubbish into ashes. At this season of the year, when the thinning of shrubberies is generally receiving attention, any and every kind of trimmings may be converted into valuable ashes, as when once a good bonfire is kindled and a glowing red heat obtained—no matter how green the wood and leaves may be—the fire will burn away as fiercely as the driest straw stack if kept constantly fed with fresh material until the whole is consumed; and there is no more certain way of getting rid of noxious weeds, such as Couch Grass, Bindweed, Docks, &c., than that of passing them through the fire, as it destroys all seeds that generally abound in rubbish heaps that are rotted away by the slow process of fermentation. To get the full benefit of all their good qualities, the ashes should be kept quite dry, by removing them, as soon as they are cold, to a shed, there to remain under cover until required for use. Ashes are invaluable mixed with soot, coal ashes, and lime, for dusting over any kind of seedlings or freshly planted garden crops, especially of the Brassica tribe; while Turnip crops are especially benefited by such a mixture; in fact, the only limit to the many uses to which ashes may be put is the power of procuring them in sufficient quantities. We find them to be the best and safest of manures for mixing with new Vine borders, also with the potting soil for many exotic plants. If many of the so-called artificial manures were composed exclusively of pure wood ashes purchasers would have less cause to complain than they frequently now have; for, in the open quarters devoted to vegetable culture, the spots on which rubbish heaps have been burned are always indicated by the luxuriance of succeeding crops. We may not get another such exceptional season for slugs for some time, but I would strongly advise all growers of vegetables to have a good supply of ashes in readiness for the next seed time, and to apply them liberally to all crops directly they are planted or coming

through the soil, as nothing looks worse in a kitchen garden than irregularities amongst crops, and if not required for that purpose they will well repay the labour by promoting a healthy and luxuriant growth. They enrich poor soils and render heavy and retentive ones friable, and they may be applied without fear of injury to the most delicate of crops. Under glass we find they are extremely useful for dusting Cauliflower and Lettuce plants, and for mixing with the soil for forced Potatoes, and such early vegetables as are usually forwarded before their ordinary season out-of-doors.—J. GROOM, *Linton Park, Maidstone.*

The Black Radish.—On walking through the Halles Centrales in Paris early last month, I was puzzled with a black root about the diameter of a medium-sized Parsnip, and one-half its length. On purchasing and peeling one I found it was the Black Spanish Radish, which is either eaten alone or sliced thin and added to salad like Beet-root. It has a pleasing nutty flavour, and is about as hot as the common breakfast Radish.—D. T. FISH.

Watercresses in France.—The use of these seems almost universal in France, and the quantity consumed is enormous. The great markets are crowded with them, and they are almost universally used in salads, and much employed as a garnish for different dishes. With plenty of Endive, abundance of Watercress in a dash of oil, and a few slices of Beet, the Parisians make a most excellent salad.—D. T. FISH.

Decayed Tomatoes.—The taste for Tomatoes does not seem to diminish with the decline of the season. But the public should look at what they eat. Immense quantities of Tomatoes in London now are much decomposed and of very doubtful wholesomeness. The yellowish-brown spots which indicate decay are not often noticed by the consumer.—V. J.

Thousand-headed Kale.—I have for many years cultivated this Kale, which was brought into notice in Kent by the Messrs. Russell, and have found it a most valuable spring food for sheep. During last spring, when greens of all kinds were scarce, I had the satisfaction of being able to let a large number of workmen pick freely from a patch of this for the use of their families, and it proved most acceptable. I heard of its produce being sold at £50 an acre for the London market. Some people thin out to intervals of nearly 3 ft. between the plants, and grow them very strong and stalky. I prefer about half that distance, and at the present time I have 2½ acres of it, which promises an abundance of food in March and April. No frosts appear to effect it.—A. B., *Pluckley.*

Scarcity of Onion Seed.—I learn with regret that the Onion seed crop is this year a very bad one, and that seed will not only be costly next spring, but that its germinating quality will be questionable. This is bad news for all market growers, to whom the price of seed is a very important consideration, and not less for the consumers of Onions in all shapes and stages. One grower of seed told me recently that he had last spring planted three tons of bulbs that were then worth nearly £30, and that the entire produce would not exceed a few bushels—barely enough for his own sowing, as he is a large grower for pickling.—A. D.

Trebons Onion.—We prefer sowing this variety in the autumn and transplanting early in the spring; in fact, treating it in every way similar to the Tripoli varieties. Thus managed, it is very fine, much superior to those that are spring-sown; and although the crop was scarcely so heavy as that of the Giant Rocca, it was really of more value, as the latter has kept badly this season. Great pains were taken with the harvesting of all the autumn-sown Onions, but the Trebons is the only variety that has kept good up to the present time. I quite agree with the remarks of "R. D." (p. 465) with regard to the mild and pleasant flavour of this variety.—AN ESSEX GROWER.

The Best Late Pea.—Having to supply as many late Peas as it is possible to obtain during the month of October, every year I have given all the reputedly best sorts for late crops a fair trial, and now, after three year's experience, it may appear strange that a very old Pea stands first on my list, and that is Hair's Dwarf Mammoth. I have never quite lost sight of this Pea, but for several years I allowed some of the newer kinds to take its place, especially for late crops; but the result was that they could not be depended upon, or our soil was not suitable, for I found the supply falling off; so I went back to my old favourite, and I now find that I have quite regained my old position of being able to gather a plentiful supply of green Peas when pleasant shooting is in full swing. To me this is a matter of some importance. We gathered our last dish of this old Pea on November the 8th, while Omega, which is the next best Pea for late sowing, ceased to bear after the middle of October. These two kinds were sown about the middle of June, both on the same day, and I need hardly say I shall still continue to stick to the old friend that has served me so well.—"Gardeners' Magazine."

THE FLOWER GARDEN.

RAMONDIA PYRENAICA AT HOME.

In all situations this is a very distinct and effective plant; although not so striking as some of the bright-coloured Primulas and Gentians, yet it is well worth growing on account of its distinct habit and abundance of bloom. It forms an evergreen rosette of blistered, wrinkled hairy leaves, which clasp the ground, forming, from the same base, a number of crowns clustered together; these in course of time force the centre ones from their original position, thus forming a large raised cushion. The flowers are borne on stems varying from 4 in. to 6 in. in height, each bearing from two to six flowers. The individual blooms measure over 1 in. across, and are of a rich violet-purple with orange-yellow centres. I have seen single rosettes with over twenty flowers fully expanded besides buds, and when seen in that state the effect is most satisfactory. It is rarely seen in good condition under cultivation, owing to unsuitable situations being selected for it. In the Pyrenees, where it is very abundant, it is found growing in almost every conceivable position on the Moss-clad stone just above the water mark of the mountain stream, on perpendicular cliffs amongst Grass on damp spots, and even on the bare rocks fully exposed to the sun, but in this latter position it forms puny specimens similar to what we see here. The most luxuriant plants of it are found on the ledges of perpendicular rocks where the roots can creep into the narrow fissures and secure abundance of moisture, which is essential to full development. It is generally found on rocks having an eastern or western aspect, but rarely in a southern or northern one. When found in a southern aspect there are rocks immediately in front of it, which screen it from the sun. In its native habitat it grows in every kind of soil, but under cultivation I find peat to suit it best, mingled with plenty of rough sand, or old pots broken up fine. It grows freely in this compost either planted out on the rockery in a shady moist spot between stones or in pots under a north wall plunged in sand. I have often wished I had an old half-decayed wall which I could cover with this plant. Under such conditions I am sure it would succeed admirably, provided the wall was naturally damp, and I could also plant with it the beautiful *Saxifraga longifolia*, which is one of the most beautiful plants belonging to the Pyrenean flora. I have gathered the two close together in the heights above Gavarine. I have found at different times several varieties of *Ramondia*; one with white flowers was exceedingly pretty. I wonder whether any of these now exist. About twenty plants of the white kind were distributed from the Hale Farm Nurseries some few years ago, and another variety with rose-coloured flowers; this I lost. These variations, however, are very rare. We may pass thousands of plants before we find one sufficiently distinct to stop our progress. A. P.

The Pyrenean *Ramondia* at home.

GYPSOPHILA PANICULATA.

I HAVE only just now returned home, after an absence of some days and your paper of Nov. 22 has come to hand. I have just read in it the remarks of Mr. Thomas Williams, of Ormskirk, about *Gypsophila paniculata*. With the single exception that the name is derived, as he says, from two Greek words, one of which ("Gypson") means chalk, and the other is the verb ("Phileo") to love, I must beg leave to be at issue with him on every point. I may perhaps premise that I am quite aware that *Gypsophila paniculata* is a mountain plant, and no doubt over many a chalky range it sends down its thick, tough roots far below, but I was never referring to anything of that sort when I made a very casual remark about it to "Delta" the other day, and I was altogether speaking of the culture of this plant in our gardens, and of the best way to manage it. Because it is found on chalky hills, it by no means follows that it must be supplied with chalk in our borders; a great many other conditions may be wanting to make that of any use. As a matter of fact my experience with this plant was the following:—I first of all

put it in an ordinary border for herbaceous plants. It had what "Delta" calls good friable loam to depend upon, but it did nothing there. It soon became a stunted and miserable object, and, so far from having a root like that of an Oak tree, it looked as though it would before long have no root at all. It chanced, however, that I paid a visit to the garden of Mr. G. F. Wilson, at Weybridge, and there I was greatly attracted by a very fine specimen of *Gypsophila paniculata*. Its aerial gracefulness of bloom was something I had never seen before, and I immediately asked some two or three questions about it. Unless my memory very greatly deceives me, Mr. Wilson told me that it does well in peat, but whether he said as much as that or not, I am quite certain that one of the first things I did on my return home was to have *Gypsophila paniculata* removed from its bed of loam and peat into one of nearly pure peat. The effect was magical. It flourished and spread far and wide, so that the well-being of some neighbouring plants was endangered by it, and

it was a thing of beauty which could not fail to be admired. Let Mr. Williams only give it a trial of this sort, and I am sure he will forget all about the Greek derivation of its name, and he will put *Gypsophila paniculata* in peat for the future.

I am quite as much at a loss to follow him when he says that it possesses no qualities to make it a bouquet plant. I should say, on the contrary, that nothing so lights up a nosegay and gives it elegance and grace as a spray or two of *Gypsophila paniculata*. It is far better than any Fern I know of. I have over and over again given it away for this purpose, and its fitness has been admitted at once. I have not time now to hunt for the passage to which I allude, but I well remember that Mr. Ellacombe, of Bitton, called attention to this in one of the earlier numbers of THE GARDEN. I cannot divine why it should do for the grates in a dried state as Mr. Williams suggests, for it seems to me that it would then lose all its loveliness, and had better be consigned to the fire rather than to the grate. Altogether I am strangely at variance with Mr. Williams about this elegant plant, but I can only say I wish I had a great many "grand secrets" about other things on which I could rely with so

much confidence as I can upon the "grand secret" which I brought home from Weybridge.

HENRY EWEANK.

Ryde.

— I am of opinion that both Mr. Williams, of Ormskirk, and "Delta" are right about this plant, though neither of them are quite so. The plant is perfectly hardy, but it is capricious. I had it for some years in great luxuriance, but, having lost it, I have never been able to establish it again. Certainly it does not require, but it may do better in peat. I do not at all agree with Mr. Williams that "it possesses no qualities to make it a bouquet plant." When the Agricultural Society met at Oxford the first prize for nosegays in vases went to a bouquet which owed nearly all its lightness and excellence to sprays of the *Gypsophila*, so that I fully agree with "Delta" that "it is a most delightful subject for cutting for nosegays."—HENRY N. ELLACOMBE, *Bitton Vicarage*.

CHRISTMAS ROSES.

THE past wet summer appears to have just suited these, as I do not remember to have ever before seen the crowns so crowded with flower-buds as they now are, a circumstance no doubt owing to the foliage having been preserved so long in a healthy, free-growing condition, instead of being ripened off too suddenly, as is invariably the case if the weather sets in at all dry. Those who are fortunate enough to have good plants of *Helleborus niger maximus*, which is the best of all, will find them of great value for lifting and potting, to be used as window ornaments, a purpose for which they are well adapted, as there they are just at home, and last a considerable time in full beauty. Out-of-doors, even if the frost does not in a great measure spoil them, the blossoms become stained and discoloured; but in a window, or under glass, they lose that objectionable tint, and as they attain age are almost as pure as the Lily of the Valley. To have them in this desirable condition for cutting, it is a good plan to cover some of the plants up with hand-lights or large bell-glasses, under which they may be easily protected by throwing a mat over them, should the weather set in severe. The wonder is, considering their great decorative value, that Christmas Roses are not more grown, as in few gardens does one meet with more than a clump or two, and these generally in some out-of-the-way place, or smothered up in the herbaceous borders by other plants of much stronger habit. To do them well, they should have a place specially prepared for them in some sheltered spot, where, if the soil is sandy, loose, and open, so that their roots can ramify freely, they soon get to a large size, and emit a large number of flowers. Before planting, it is a great help to them to trench the ground, and work in plenty of leaf-soil and rotten manure, and when growth is active to mulch the surface around them, and give them a soaking or two of water, as the great thing is to get them to develop their foliage freely, for without an ample spread of this the crowns do not attain their natural size and strength, and therefore have not the power to bloom so profusely as they otherwise would. The safest and readiest way of propagating the Christmas Rose is by division, and the best time for doing this is in April, when the plants are commencing to send up fresh leaves. Dug from the ground then, they may be easily separated, after washing or shaking the soil away from the roots, so as to see clearly where the prominent crown buds are, and where a severance can be made without waste or injury to the other parts, which could not be done by making random cuts, or pulling them asunder without some previous examination. Plants purchased at once will yield some blooms, and will then be available for effecting an increase later on when their beauty is over. Although I have heard of seedlings being raised, I have never been able to save seed, as the pods have been always abortive; and yet they swelled and looked well filled till the time for ripening arrived, when they collapsed, and were found to be empty.

S. D.

Arum Lilies in Water.—A few years ago, I planted some pieces of this amphibious plant in water, by the side of an embankment, and they have so increased that, at the present time, they form an immense mass, 120 ft. long, and several feet broad, and, when in flower, they are a grand sight, hundreds of magnificent blooms being open at one time, and much finer than when carefully grown under the directions given in most gardening books. In severe winters, especially the last, they were cut down to the water's edge, but they always came up again as strong as ever when mild weather returned, and flowered well though much later than when not cut down by severe frosts. In very mild seasons they commence flowering before Easter. A good plan as regards planting them is, to fill some worn-out bushel baskets with any refuse soil that may be at hand, into this plant the Arums, and plunge them into about 2 ft. of water, then throw a few barrowfuls of soil and stones around to keep them

steady and to form mounds. The baskets soon rot, and the plants become masses of foliage and flowers, as has just been stated.—SANGUINEA.

Double White Rocket.—This should be taken up and divided every season, or it will soon cease to exist; a circumstance which may account for its being so rarely seen. For it certainly is one of the most beautiful hardy border plants in existence. Being very free its fine spikes of pure double white flowers, when grown in quantity, load the atmosphere with perfume; and when associated with the blue Canterbury Bell, one line of each, it has a striking effect. It will grow almost in any soil or situation, and it may be increased to any extent by simply splitting up the old stools with a sharp knife every autumn. We also grow the double purple, but neither that nor any of the other sorts, that I have seen, can at all compare with the grand old double white kind.—SANGUINEA.

The Fringed Grass of Parnassus (*Parnassia fimbriata*).—This interesting species has only recently been introduced into this country. It is a native of wet bogs in Nevada, Colorado,



The Fringed Parnassia (*P. fimbriata*).

&c., where it covers large tracts of land in the same way as the British species does in the north. It is a true perennial, forming a tuft of ovate-cordate, smooth, pale green leaves measuring from 1 in. to 1½ in. across, closely set together, and forming quite a rosette; from the centre rises a stem about 1 ft. high, bearing a solitary leaf about midway up, and terminating with a large Anemone-like flower, which is pure white and beautifully veined. The flower is composed of five petals having a narrow base or short claw, and the margins are beautifully fringed from the middle to the base, giving it a most chaste and elegant appearance. It is perfectly hardy, having stood out the whole of last winter on my rockery in company with *P. caroliniana*, *P. asarifolia*, and *P. palustris*, all of which flowered beautifully, affording a good opportunity of comparing their respective merits. *P. fimbriata* is one of the most beautiful bog plants with which I am acquainted. All the plants belonging to this group grow freely in spongy peat, leaf-mould, &c., especially if mixed with *Sphagnum*, in very wet positions.—T. S. W. [Our woodcut was prepared from a plant in Mr. Ware's nursery, Tottenham.]

Gaura Lindheimeri.—The striking effect produced by means of this plant in the squares and gardens of Paris induced me to raise some seedlings of it last spring with a view to giving it a trial in the flower gardens here. These seedlings have flowered abundantly, and I have little doubt that when this plant becomes better known it will prove a permanent addition to our stock of hardy bedding plants. It grows about 2 ft. high, and is of upright habit, and branches very

freely, every shoot yielding a succession of pinky-white blossoms, and with liberal treatment there seems no limit to the time during which it will keep on blooming. Planted in front of shrubs and in mixed arrangements of herbaceous plants, or in the back row of a ribbon border it would prove equally effective. It roots freely from cuttings made of the young side growths, inserted at the same time as those of the *Calceolarias*, and treated in the same way through the winter months.—J. ROBERTS, *Gunnelsbury Park*.

Fern-leaved Rue (*Ruta albiflora*).—The annexed representation of this exquisite plant was prepared from a spray furnished by Mr. Green a short time ago, from Sir George Macleay's garden at Pendell Court, Bletchingly, where it has withstood the rigour of



(1) The Fern-leaved Rue (*Ruta albiflora*), half natural size.
(2) A spray, natural size.

the last winter unprotected. It may, therefore, be fairly considered to be hardy. It is a native of Nepal, and though more than a century has elapsed since it was first introduced, it is by no means a common plant in this country. Its finely cut foliage overlaid with a glaucous hue, and the profusion in which its tiny, bell-shaped, white blossoms are produced, render it a highly desirable plant. It is, moreover, one that requires only the simplest culture either in pots or in the open border. Mr. Green says it is not a little surprising that this Rue is so little grown, for it is not only valuable and graceful for autumn and winter flowering as a cool greenhouse plant, but it has proved at Pendell Court to be quite hardy and is in flower up to the present time. It also proved hardy some twenty years ago in the gardens of the late Mr. W. Borrer, Henfield, Sussex.—W. G.

Effect of the Late Summer on Hardy Plants.—A curious instance of the inclemency of the early autumn is that the

usual autumnal flowers failed to perfect their blooms in the north of England. *Statice latifolia* and *S. Gmelini* remained nearly two months in bud but never flowered. The Sunflowers, double and single, were stricken down by frost before any of them had produced more than one or two blooms; and the *Lilium auratum* only bloomed in open quarters; wherever planted in the shade its buds never expanded.—BROCKHURST.

ROSES.

THE ROSE ANNUAL.

MR. W. PAUL'S Rose Annual for 1879-80 has just reached us. It contains coloured portraits of *Pride of Waltham*, a delicate flesh-coloured Hybrid Perpetual, richly shaded with bright rose; *Masterpiece*, rosy crimson, also a Hybrid Perpetual; *Little Gem* or *Crimson Moss de Meaux*; and *Jules Chretien*, a velvety shaded deep red Hybrid Perpetual. In addition to these, it contains chapters on the current year; new Roses; the best Roses; Rose synonyms; correspondence, and observations on the Rose shows. From these we select the following, on

REMINISCENCES OF OLD FAVOURITE ROSES.

It is now over forty years since I had my first lesson on growing and exhibiting Roses, and on looking back what changes do I see. But some old faces are left still. The first Rose I remember is the common *Pink China*, growing in a sheltered spot in my grandmother's garden, a large bush, 6 ft. to 8 ft. high, covered with lovely buds almost to Christmas. And associated with this is a *Crimson China*, a lovely contrast. I presented, Nov. 12th, a bunch of these two sorts to a lady, who pronounced them beautiful. These old friends carry me to another lovely spot in an old-fashioned place, "Luton Hoo," the residence of the late Marquis of Bute. There were large clumps of evergreens encircled with these *Roses* and *Honeysuckle*; beneath grew in sweet luxuriance *Violets* and other dwarf perennials. Late one autumn I was walking through a Rosery of considerable extent, well screened with evergreens for a background, and close in front was a line of my old *Pink China*; scarcely a bud was to be seen on any of the other sorts in the beds but that line was beautiful. Closely allied to the above is *Mrs Bosanquet* and the old *Bourbon Queen*; and of later date, *Souvenir de Malmaison* and *Gloire de Dijon*, *Jules Margottin*, *General Jacqueminot*, *Duchess of Sutherland*, and *La France*; but none can compare with my old friend for constant and abundant blooming late in the year. At the time of which I speak, the *Damask* and *Gallica* were in high favour, and pretty and sweet they were, but of short duration.

This brings to my mind a journey I once took to a Rose show in Essex. I was up before the lark, waiting for sufficient light to start by, and we had a lovely lot of blooms, with plenty of buds in all stages of opening. The *Regent's Park Show* was on the same day, where we took the first prize for fifty blooms. But I had the cream of the lot to take with me into Essex, and I started with full confidence of an easy victory. The flowers rode well, and were in first-rate condition; but the judges placed me last, and several exhibitors complained that I had a prize at all. I staged the best H.P.'s and some beautiful Teas, but the other exhibitors' flowers were all *Gallicas*. Beaten by *Gallicas*! I returned home a sadder and a wiser man, having come to the conclusion that if I went to Rome I must do as Rome does. On leaving, I invited my friends, Cant and Hedge, to come to London, but to leave their *Gallicas* at home, and many will remember the fine Teas afterwards shown in London by Mr. Hedge. But, again, I pass through Essex to an adjoining county, with a collection of over a hundred varieties, all the finest sorts of H.P.'s, Teas, &c.; but my former competitors could not stand against me this time. The old standard of excellence had been lowered, and a new one erected. The poor *Gallicas* had to give way, and I was awarded two silver cups, which were the first but not the last prizes which I won, for I have had five or six cups at a time when *Roses* were shown as one sees them on the tree with buds in every stage of opening.

I have passed from the list of exhibitors; but if I look in at the shows now, what do I see? Not what we gloried in, but lines of flowers almost as bare of buds as lines of *Dahlias*. But exhibitors must to a large degree all bow to the Goddess of Fashion, still we lose much that is most beautiful in Nature by the excessive disbud-ding now resorted to. But I must not forget my old friend, the pot Rose, as that was always a pet of mine; and at my first date, if we could get five or six blooms on pot plants, they were looked at with as much wonder as the mammoth specimens now exhibited. Well do I remember taking a standard of the *Smith's Yellow Noisette*, with ten blooms on it, to an exhibition; it was scarcely forward enough for the day, so we plunged the pot in a strong bottom heat in the Pine-stove, and that had the effect of opening the flowers in the best possible condition. This sort is at all times a difficult one

to open well, but many very full Roses open better with heat and moisture. And now comes the day to match our strength against the noted Lane. It was at the old Chiswick gardens. I thought we were safe for the first prize. But no! That glorious old Coupe d'Hebe was too much for us. The late Mr. J. Edwards told me on that occasion it was "a long Lane that had no turning;" so I nourished my pets with night soil and liquid manure as much as they would stand, and at Regent's Park my Paul Perras and Paul Ricaut turned the scale, and once turned it was not then so difficult to keep it on my side. The smaller plants were always my favourites, such as can be grown in about 9-in. pots, in good strong loam, stable manure, and night soil, thrown together six months previous to use. The plants should be potted early in September, and started in gentle heat—a little bottom heat, if possible—and plants so managed will always reward one for the cost and trouble. The Rose-house was always my delight, and reminds me of my friend, Maréchal Niel. How I prepared his place with 2 ft. of good soil, well drained, and selected a strong 3 ft. standard with a free stock, started him growing in April, and he made a growth of 15 ft. the first year! Only three or four shoots were allowed to run, and these in pruning were shortened to about 10 ft. The shoots broke regularly by being bent down; and the next year I was rewarded with 300 lovely flowers on this one plant. By cutting out the old shoots in pruning, and encouraging the new ones in their place, every succeeding year this beautiful plant for several years presented us with a similar display of magnificent blooms. Although I do not now exhibit, I still cultivate Roses with all the ardour of former years, and far more extensively than ever, and experience gives me grander results!—WILLIAM IRONMONGER, *Frankfield, Hawkhurst.*

Of the new kinds of 1878-9, those which Mr. Paul has selected as the best are:—Hybrid Perpetuals: Barthelemy, Levet, Gaston Leveque, Henri Vilmorin, Jules Chretien, Louis Dore, Madame Lilienthal, Madame Morane Jeune, Paul Jamain, Pierre Carot; Prefet Limbourg, Princesse Marie Dolgorouky, Souvenir de Madame Robert, Souvenir de Victor Emanuel (Moreau), and Wilhelm Koelle. Tea scented: Dr. Berthet, Innocente Pirola, Madame Etienne Levet, and Reine Marie Henriette. Noisette: William Allen Richardson. Amongst the Waltham Cross Roses, the Countess of Rosebery and Duchess of Bedford are stated to have proved two of the finest of recent novelties.

Rose Baroness Rothschild.—Of all Roses with which I am acquainted, this is the best for late blooming. Since the month of July we have been cutting from it weekly; and to-day, November 29th, I have cut a bloom from it equal to the best in July. How does this Rose succeed under glass in winter?—C. AMBRIAN.

Noisette Rose Jaune Desprez.—What a delightful wall Rose this is, especially for unfavourable situations. It is wonderfully long-lived and vigorous. It is one of the earliest to open in spring, and one of the latest in autumn. Colour fawn, tinged with pink, strongly scented. It is an old Rose; I have known it more than twenty years; in fact, I am acquainted with a plant of it on a gardener's cottage twenty-three years old.—E. HOBDAV.

Climbing Roses for Trees.—Ayrshire—Dundee Rambler and Alice Gray, creamy-white; Ruga, pale flesh; Thoresbyana, white. Boursault—Amadis, crimson; Blush, pink; gracilis, bright red. Evergreen—Félicité Perpétuelle, white. Noisette (for trees of lower growth, such as partly dead Thorns or Hollies, short pollards, &c.)—Celine Forestier, yellow; Aimée Vibert, pure white; Rêve d'Or, deep yellow. Hybrid China—Charles Lawson, rosy-carmine. Tall climbers—Gloire de Rosemeles, single scarlet; Willison's Weeping, scarlet; and Willison's Victoria, pink.—J. CHALLIS, *Wilton, Salisbury.*

The Engraving of Longleat.—A correspondent writes to us as follows concerning this: "Allow me to thank you for your beautiful picture of Longleat. I am a little difficult to please, but I soberly and thoughtfully, and not without the memory which reminds me of many other excellent illustrations of English gardens, write down my conviction that this engraving from Parson's sketch is the best I have ever seen. The trees and distance are lovingly handled, and the repose of the untortured breadth of sward is a fit foreground to the stately Elms and the repose of the fine old house beyond. There is no pretence about the picture; it looks true, and, I have no doubt, is true to a tree trunk or a window. The magic of repose throughout satisfies me, and I shall often turn back to it with pleasure as a bit of good, honest art, and also for its admirable portraiture of an English residence and park. I feel like the man who smashed his fiddle after hearing Paganini, and so I think I shall never try to draw again."

THE GARDEN FLORA.

PLATE CCIX—A GROUP OF COLOURED PINKS.

Drawn by CONSTANCE PIERREPONT.

THERE are probably few cultivators of garden flowers who would be bold enough to say how long the Pink has been cultivated as an improved flower in this country; indeed, nothing definite can be ascertained as to the original species of *Dianthus* from which the numerous varieties of Pinks have sprung. I would be inclined to place the fine laced varieties, the colours of which are purple or purplish-red on a white ground in one section, and suggest that the original species from which they have sprung is *D. plumarius*; this is a dwarf-growing plant, introduced from the south of Europe as far back as 1629. Its flowers are white with a purple centre, and the leaves glaucous. The varieties represented in the annexed plate certainly belong to a different type, and very probably their parentage could be traced back to another species, namely, *D. deltoides*, which may frequently be found in pastures and grassy banks in many parts of Britain. The flowers are palerose, and are furnished with a circle of deep-coloured spots. Referring again to the flowers in the accompanying plate, Lady Blanche is the finest white variety yet raised; the flowers are sufficiently double to suit all tastes, and yet the pod does not burst. It is a very free-flowering sort; a single plant raised from a cutting in May will produce nearly fifty flowers the following season. Lord Lyons is certainly the best of the coloured varieties; it flowers very freely, and its blossoms are of good shape. In habit the plant is distinct and dwarf. Ascot is a very distinct flower, but lacks the symmetry of most of the others. Derby Day is a strong-growing variety, but rather straggling in habit, and subject to spot; it ought to be grown in every collection, but I do not place it high on the list as regards quality. Newmarket, a reddish-purple self, I have not grown, and therefore cannot speak as to its merits. Miss Joliffe is a flower of quite a distinct type from any of the above, and must rather be classed with the perpetual-flowering Carnations, although it differs from them in not growing so tall, nor branching much from the main stem.

There are a few other varieties which should be grown, and one of the best of them is the old but very useful Anne Boleyn, which I consider better than Derby Day; Rubens and Mrs. Pettiferought also to be grown. The classification of these Pinks is haphazard, and not scientific. They are merely known as "early or forcing Pinks," although some of them are not early; still it is enough for most cultivators that they obtain the varieties which they require, and that they know how to grow them. They are most frequently used for forcing, and for this purpose the plants must be grown in the open ground during the summer months, and should be potted into their flowering pots in September or early in October.

It would be rather difficult to obtain large specimens of these Pinks to force for next season, but those intending to grow them would do well to obtain as good plants as possible this year, and propagate from them in May next season. If the plants are placed in gentle heat about the end of March, they will have grown sufficiently by the first week in May to produce good pipings or cuttings. The small growths should be taken off carefully and be inserted in fine soil in pots or shallow pans, about a dozen in a 5-in. pot. The pots must be plunged over a gentle hotbed, and if shaded from bright sunshine for two or three weeks, they will be rooted by the end of that time. When they show signs of growing, air must be admitted more freely, and after a time the pots may be placed out-of-doors. After this free exposure to sun and air, it will be desirable to plant them out about 6 in. apart on a bed of fine soil; here they will grow away freely and form compact tufts (perhaps bushes would be the more correct term) by the end of the summer. There will be some small plants amongst them, and pots of various sizes are used in which to place them for forcing. I generally use 5-in. or 6-in. pots. If the plants are small two or three are placed in each, but in a good season one plant will well fill a 6-in. pot. When potted arrange the plants near the glass in frames, and keep the lights rather close until the plants have become established, when air may be more freely admitted. They may also be wintered in cold frames, from which they are removed as required to the forcing houses. One of the best forcers is Lady Blanche, the flowers of which are also the most useful because of their being pure white. In forcing it is best not to have a very high temperature to begin with, and the plants should be placed near the glass, admitting as much air as possible, having regard to their requirements. When the first flowers open I like to remove the plants to the greenhouse, where the remainder expand slowly, and last in good condition for many weeks.

J. DOUGLAS.

[For the opportunity of figuring the blooms illustrated in the annexed plate we are indebted to Mr. Ware, Hale Farm Nursery, Tottenham.]

GARDENING FOR THE WEEK.

Conservatory.

Winter Arrangement.—There are few more effective plants for conservatories than Tree Ferns, but, in common with many of the dwarf-growing species, it is often supposed that the Tree kinds require considerably more warmth than that which an ordinary greenhouse affords, especially in winter; consequently, it is no unusual occurrence to see the large arborescent species confined to houses in which some heat is continuously maintained, and frequently much more than they like, whilst they would be better in every way in a lower temperature with a drier atmosphere. Even where the temperature of a conservatory is kept no higher than that of an ordinary greenhouse, there need be no hesitation about placing Tree Ferns in it. The arrangement of these and other plants of a similar description must necessarily be dependent upon the character of the house. Where objectionable central stages exist, such subjects as those of which I speak can never be made effective, as the pots or tubs in which they are grown have to be elevated, and are thus brought too prominently before the eye; and, unless the house is a high one, the heads of the plants, if tall, are in too close proximity to the roof, which not only interferes with their appearance individually, but spoils the general effect. Such kinds as *Dicksonia antarctica*, the more elegant *D. squarrosa*, *Cyathea dealbata*, or *Alsophila excelsa*, all species that form compact, moderate-sized heads, especially when not grown too hot, may be used in conservatories of not more than medium size, so as to form centres of groups, which are much more effective than the often adopted method of filling the middle of the house with a large single mass of plants. Individual specimens of such as I have named, with stems sufficiently tall, or that can be raised high enough to admit of walking under them, with a circle of bushy *Camellias*, *Cytisus*, *Acacia armata*, *Azaleas*, or anything of similar character, gradually reduced in height towards the margin, and edged with still lower things in or out of flower, produce an effect which the most costly and elaborate stages fail to give. The great advantage resulting from dispensing with centre stages in conservatories, or beds in which the plants are planted out, is that it admits of the arrangement being so varied from time to time as to give the whole a completely different appearance, so much more desirable than the continuity of the same plants always in the same places as when stages are used. Even in the dull season of the year that we are now passing through an eye that is trained to effective arrangement will, with limited and common-place materials, often make a conservatory or greenhouse look better than where more valuable plants with more flowering subjects are at command. But in all this kind of artistic grouping it is necessary to prepare much larger numbers of plants that are made to do subordinate duty in edging the groups than under ordinary circumstances, especially in the case of winter plants, such as *Primulas*, *Roman* and large-flowered *Hyacinths*, *Narcissi*, *Hoteia japonica*, forced *Lily of the Valley*, small shrubs (such as *Deutzias*, *Azalea amœna*, and *Double Prunus*), *Richardia æthiopica*, *Spiræa palmata*, *Amaryllis*, and anything of a similar somewhat taller character, with enough green material, such as *Adiantum cuneatum* and *hispidulum*, *Pteris serrulata* and *P. cretica albo-lineata*, *Isolepis gracilis*, and *Selaginella*, all of which it is necessary to grow in greater quantities than for the promiscuous style of plant arrangement, beyond which at one time little was attempted. Where *Cyclamens* are well grown with the last year's sown plants kept on continuously warm with something like an intermediate temperature, these will now through the winter months, where grown in sufficient quantity, play an important part in the arrangement of conservatories and greenhouses that are kept tolerably warm, without which plants that have been grown with some heat cannot be expected to continue long in good condition; but to do justice to these plants they require keeping near the glass, so as to have plenty of light. Moveable wire stands are very useful wherein to group plants of this character, which, if relieved by a few of the hardier kinds of more elegant leaved *Palms* or other green-foliaged plants, do much to enliven the general appearance. There is one thing in reference to the management of conservatories at this season of the year of which it is well to remind the inexperienced, and that is the necessity for doing something to prevent the atmosphere getting too dry. This is a matter which requires to be carefully managed, so as to avoid the extremes of too much moisture, which is objectionable in many ways, and the dry arid atmosphere that never fails to cause the premature dropping of *Camellia* buds. Where the pipes for warming the house are sunk in trenches below the floor the best means that I have found is to get here some moisture-holding material, which, if kept wet enough to produce the slight evaporation necessary, will answer the purpose, and wherever the heating medium is placed something of a similar character can be managed in such a way as to answer every purpose.

Greenhouse.

Watering.—Simple as this operation is, it will nevertheless be found that in a mixed collection of plants moderately varied in character, it requires a good deal of attentive observation to give to the whole water in such proportion as may be required, for, although general rules may be given, such as impressing the necessity for plants of comparatively quick growth being more liberally supplied, not only when in active growth through the summer, but also during winter, than slow-growing, fine-rooted, hard-wooded subjects, some of which need no more water during the dull months than will keep the soil slightly moist; yet, to generalise too far in this direction is sure to lead to serious mistakes, as there can be no question that the state of the roots as to the moisture required, quite as much in the winter as in the summer, always depends upon the conditions, in this respect, under which the plants exist in their native country in the different seasons of growth and rest; for instance, *Azaleas*, coming as they do from the moist hill districts of India, though very fine, somewhat delicate-rooted plants, will not bear without injury the soil being kept nearly so dry as plants from New Holland or adjacent parts of the world, whilst many of these in turn need more water than some of the Cape species, particularly *Heaths*. Those, therefore, who have not had much experience in the cultivation of mixed collections of plants will find that they will be able to form a correct estimation of their requirements, by in this way determining the more or less moist condition in which they should be kept, than by being led alone by their hard or soft-wooded character. Taking plants collectively, both those that require keeping the driest, and also those that want the most moisture, there will obviously not be, in the winter season, danger of absolute death through their being kept a little too dry, as there is from a similar cause in the summer when growth is in an active state; yet where plants naturally need the soil about their roots being kept comparatively moist, when they receive an insufficient supply they get into a languid condition that enfeebles them so far as to prevent their making nearly the progress they ought when the season of growth comes round.

Primulas.—The single varieties of this plant have become much improved of late years; but still no attention to seedling raising has the effect of removing the disposition to damp off in the winter months, which there seems to be only two methods of avoiding. Of these the best is keeping them through the winter in a temperature higher than that of an ordinary greenhouse, say from 45° or a few degrees higher at night in a light position. Thus situated, with a little more warmth in the daytime, there is not much to fear from the effect of damp, and they may have sufficient water given to enable them to keep on growing and throwing up flowers; but when in greenhouses where little more heat is maintained than just enough to exclude frost, they need to be kept close up to the glass, and should receive no more water than is required to prevent the soil from getting so dry so as to stop all growth. Where there is a chance of treating them in the former way they will produce double the quantity of flowers; yet at the best the single varieties are of little use for bouquet or button-hole flowers, as compared with the double kinds, in which there is now even greater improvement than in the single ones. The facility with which the single varieties are raised from seed to that of the double sorts, needing, as the last do, to be increased by cuttings, is the cause of the double ones being so much less grown than they deserve to be. The fine forms of these that now exist are such that wherever there is a continuous demand for cut flowers, and means of keeping them something warmer than a greenhouse through the winter, they should be extensively cultivated. The best forms, now in the colours of pink, pure white, blush, and white slightly flaked with pink, have flowers almost as large as an ordinary *Pink* (*Dianthus*). The advantage in their use for cutting is that they will keep fresh for days, whereas the blooms of the single varieties are so liable to fall off that no dependence can be put on them in any arrangement of cut flowers.

Schizostylis coccinea.—Those who grow in pots a good stock of this handsome late autumn blooming plant cannot fail to have noticed how useful its bright scarlet spikes of flowers are through the autumn months. Its blooming will in most cases now be nearly over, and although the plant, so far as I have had experience of it, is hardy, still in common with anything of a similar nature that has been kept in a warm greenhouse through the autumn, it is better not turned out-of-doors, but should be moved to a cold pit or frame, and there have the pots plunged in ashes.—T. BAINES.

Flower Garden.

Auriculas.—It is still necessary to look over the plants in order to remove all dead and decaying leaves. Apply water to prevent the soil in the pots becoming quite dried up. I recommend mats to be placed over the glass when the frost is very severe. Admit plenty of air; in fact, remove the frame-lights

whenever the weather is at all favourable. There is some difference of opinion as to the position in which the frames should be placed. Most growers prefer them to face south or south-east, but much, of course, would depend upon the time when the plants would be wanted in flower. If the bloom is wanted to be at its best by the middle of April, I would say let the frames face the south, but if it was not wanted until nearly the end of the month, let the back of the frames be placed to the south. Seedlings continue to vegetate, and although severe frosts may not injure them much, I prefer placing the pots near the glass in a cool greenhouse. See that they just receive enough water to maintain a fairly uniform degree of moisture in the soil.

Carnations and Picotees.—It is singular how the soil in the pots of those plants that have been placed in a gentle bottom heat require so much water as they do at this season, while those in pots placed in cold frames do not require nearly so much attention in this respect. When the plants are fairly established in cold frames they do not require much water at present. If they are looked over about once a week, and those plants that require water are carefully attended to without spilling any or wetting the leaves, they are not likely to be injured by the disease called spot, which is usually engendered by too much moisture in the frames during the shortest days of the year. There are some sorts both of Carnations and Picotees that are seldom or never attacked by spot, while others seldom escape that disease if the surrounding circumstances are favourable to its attacks. I would not say that we have never had any spot on our own plants, but I cannot recollect an instance of its appearance, and believe that the plants can be kept clear of it by free ventilation and the maintenance of as dry an atmosphere as possible at all times. I believe that Mr. Dodwell's plants, although in a damp smoky atmosphere, are practically suffering from its attacks.

Dahlias.—Where the roots of these have been stored away, it is necessary to look over them occasionally to see that the crowns of the tubers are not injured by damp, caused by the stems decaying. If this has happened, the decaying portion must be carefully removed, and the root thus affected should be taken out and placed in a light airy position to dry. All that is required is to keep the tubers in a comparatively dry place, where frost cannot penetrate.

Phloxes and similar plants in pots are now comparatively at rest in cold frames. It is best to plunge the pots in some rather dry material, such as fresh Cocoa-nut fibre refuse which answers as well as anything for the purpose. Plenty of air should be admitted, removing the lights when it does not rain, the same as in the case of Auriculas.

Tulips.—It was stated two weeks ago that we were fortunate in getting the bulbs of these planted out when the ground was in good condition, and also the loam that was placed over the surface of the beds for the reception of the bulbs. The question now is, what is the best treatment during winter? and this was also a question that agitated the minds of growers many years ago. One grower stated that he never covered his beds to protect them from rain, and another equally successful cultivator was careful to protect his beds from all the rain that fell. I think, however, that the first-named grower was right in principle, but, at the same time, I would recommend that, where appliances are at hand, the beds should be covered from excessive rainfall.

Cold Frames.—It is well known that where very choice collections of herbaceous plants are grown it is desirable to winter a portion of them in cold frames. The plants ought to be established in pots before the winter, and then it is desirable to plunge them in some light material. We devote a frame or a portion of one to choice species of *Primula*. In the same frame are also *Ixias*, *Anthericum Liliastrium*, *Meconopsis*, *Trilliums*, and, indeed, any plants the whole stock of which it is not desirable to risk in the open garden. These plants will not take care of themselves, nor do they require much attention. All that is needed is to look over the pots about once a week, and to water such as require it. The frames ought also to be freely ventilated.—J. DOUGLAS.

Indoor Fruit.

Vines.—As the season has been of such an exceptional sunless character, probably all Vines, even those that appear well ripened, and which have had a tolerably long season of rest, should not be started in any case as early as usual. It will be advisable to excite growth very slowly, and particularly so if the weather continues as severe as it now is. Adherence to fixed temperatures at certain stages of forcing is founded on a most illogical basis, as temperatures should always be subject to the fluctuations of those outside. Granted, that good fruit can be had by disregarding this rule, and that sometimes one is compelled to force against time; still, that does not justify adherence to fixtures, for, in the long run, the Vines

must suffer by such unnatural treatment, and this is proved by the fact that a large number of early forced Vines are yearly reported to have failed from no apparent cause; but which I believe to have been induced by express speed as regards forcing. It therefore becomes a question as to whether, in order to have the fruit ripe two or three weeks earlier, it is worth while to sacrifice the permanent well-being of the Vines; by the exercise of but a moment's thought, a negative reply will be given by all. Early houses that have outside borders will need protection, consisting of a covering of dry Fern or leaves in sufficient bulk to exclude frost, and sashes or shutters to throw off snow and rain. The Vines in succession and midseason houses will now all be ready to prune, and the sooner this is done the sooner will they go to rest. If they have been infested with insects, remove from the stems the loose bark only, and then paint or wash them over with a strong solution of Gishurst or soft soap and sulphur. The removal of the outer bark of the Vine is only recommended in order that the insects may be the more easily reached by the wash; where insects have not been troublesome, by all means leave the bark intact, for its removal, to say the least, is most unnatural, and must in some degree prove injurious. Late houses still require careful management in order to keep the Grapes in good condition; besides keeping the atmosphere as dry as possible—not arid—it is necessary to keep the temperature from ever falling so low as that outside, which on some mild days might be the case if not closely watched.

Figs.—In the culture of Figs there are two conditions essential to securing the best returns, the first is restricted root space, and the second is liberal manuring; the first ensures fruitfulness, and the second is necessary to its more perfect development; hence arise the generally satisfactory results that are obtained by growing Figs in pots, a plan that cannot be superseded for early work, but for general and late crops much more and finer fruit can be had by planting out. Of course, the size of borders must to some extent be ruled by the space there is for the spread of the trees, but, as a general rule, 2 ft. in depth and 6 ft. in width will be found to be ample. Provision for surplus water to readily pass away should be made by the concrete or paved bottom being made to slope to the drain in front. The soil in which Figs revel is a chalky loam, to which may advantageously be added charcoal, and a small proportion of $\frac{1}{2}$ -in. bones; it should be made firm, for in a loose, spongy soil the trees are apt to grow too robustly. When once the borders have become full of roots the annual removal of the top soil will be necessary, for the purpose of adding fresh feeding material, and the disturbance which the roots thus get gives a salutary check to any disposition that the trees may manifest towards too vigorous a growth. Now is the time to apply such top-dressings, and also to place a portion of the trees in pots in gentle warmth. Bottom-heat is not necessary, but time will be gained if this can be afforded by plunging the pots in Oak leaves, in sufficient bulk to engender a heat of 65°. The leaves will give off sufficient moisture, therefore the plants will not need syringing, and for the present fire-heat will only be required when the temperature is likely to fall below 45°.

Peaches and Nectarines.—The thermometer on Dec. 1 registered 22°, or 10° of frost, with every appearance of a continuance; therefore, where forcing has commenced it will be necessary to guard against the application of too much fire-heat; better allow the temperature to sink to the freezing point than risk bud shedding through too much artificial warmth. Under present conditions, as to weather, 45° should never be exceeded; syringing overhead should also be discontinued, and instead the borders, walls, and floors should be sprinkled morning and night. Succession and late houses should also be kept closed in frosty weather, not that the trees are not hardy enough to bear a few degrees of frost without real injury, but because it is only reasonable to suppose that trees which have been subjected for some years to indoor culture might suffer if too much exposed. Finish pruning, cleaning, and tying, and afterwards remove all the old mulching and inert top soil, and replace them with good maiden loam, wood ashes, and bone dust.

Strawberries.—To have ripe fruit early in March, which is quite as soon as the fruit is good, a number of plants should now be started. Where there is no house specially devoted to their culture, one of the best positions for this early batch is a pit filled with Oak leaves, on which the plants should be set (not plunged) closely together; the warmth and moisture given off from the leaves soon causes new root action and expansion of the crowns. Caution is requisite that roots do not protrude and get established in the leaves, as, before this takes place, they should be drafted on to shelves in Peach-houses, Vineries, &c., and others put in their places. Whilst in this position they may require water about twice a week, but no syringing will be requisite, the moisture from the leaves being ample. A little ventilation will be necessary in all weathers, but when mild give air liberally. We always select 200 of the finest plants for the first introduction; half the number would be abundant, could we depend on all of them setting and swelling off their fruit well, but

at this early season it is always advisable to allow a wide margin for failures; therefore start plenty, and keep selecting the best plants, the weakest ones will do good service at the end of the season.—W. W.

Kitchen Garden.

Winter has set in early, and that too with unusual severity, therefore the protection of the various vegetable crops and saladings becomes an absolute necessity, the more so because the growth is so flaccid and watery—a circumstance which, as a matter of course, renders the plants the more susceptible of injury from frost. In districts where the common Bracken is plentiful, protection becomes a very easy matter, as there is no better material for covering Celery, Cauliflowers, and early Broccoli; the lightest sprinkling of it over the plants wards off many degrees of frost, and what is of great consideration in some gardens it does not present that untidy appearance that stable litter does, which is the next best protecting material. All heads of Broccoli or Cauliflowers that are anything like fully grown would be best lifted entirely and taken under cover. They keep good for weeks either heeled in or suspended head downwards in any cool shed from which frost can be excluded. Lettuces and Endive may also be protected with Bracken, but those that are required for winter salads ought always to have the protection of frames. Cauliflower and even Cabbage plants will be the better to have protection in severe weather. Parsley is best protected with mats resting on hooped sticks, or Pea-sticks laid over the bed. Of course all such protection should only be employed when the weather is really severe, and should at once be removed when it has become more favourable. After such hard weather it is also necessary to go over plots of Brussels Sprouts, Cabbages, Savoys, and Kales, and pick off all the decayed leaves, which not only smell disagreeably, but hinder the admission of air, which is most essential to keep such green crops in a sturdy condition. When the weather renders it impracticable to work on the ground, compost and manure heaps may be turned over, leaves and stable litter got together for making hotbeds for forcing purposes, and drains opened, ditches cleared, hedges clipped, and advantage should always be taken of dry, frosty weather to do all heavy wheeling or carting, for such work is then not only the more easily and expeditiously done, but there is no after repairing of walks required, as is the case when the traffic takes place under less favourable conditions, and thus "labour saved is labour gained." In the forcing department increased vigilance will now be requisite to keep up supplies. With proper appliances, as regards heated forcing pits and frames, this is an easy matter, but in the majority of gardens these are lacking; hence a certain amount of scheming and contriving as to how and where to grow the various crops is necessary. Rhubarb gives least trouble when the roots are lifted and placed in a Mushroom house, but the want of such a place need be no drawback, as it will do in any shed, cellar, or outhouse, only, of course, the warmer the situation the sooner it is ready; in cool places time may be gained by always watering with warm water at about a temperature of 90°. It may also be forced in the open ground by placing over the crowns, pots, tubs, &c., and using leaves only as a heating medium, as the addition of litter renders the heat too violent. Seakale is amenable to exactly the same modes of forcing as Rhubarb, except that extra care is necessary to exclude light and air to blanch it well. Forcing pits that are specially constructed and heated with hot-water pipes are, of course, the best in which to grow Asparagus; but a bed made up of leaves and a small proportion of stable litter, with frames placed on it, or a similar bed made up on the floor of a Vinery that is being forced, serves the purpose equally well. A bottom-heat of 75° should never be exceeded, and a top or surface heat ranging from 45° to 55°. For the forcing of French Beans—even when there are pits specially constructed in which to grow them—there is no better plan than having them in pots, as they can then be moved at will, and the crop advanced or retarded as may be required, and a constant succession is far more easily maintained by making a sowing fortnightly in quantity according to demand. One important item in their culture is that they are moisture-loving, and should never suffer from want of water either at the root or in the atmosphere. Carrots and Radishes force well when sown on a bed of sufficient massiveness to produce a bottom-heat of 65°; glass coverings are, of course, indispensable, but when the weather is mild the fullest exposure is necessary. If the two crops are sown in alternate lines 6 in. asunder, the Radishes will come off before they are in any way detrimental to the Carrots. Herbs are required in such small quantities only that they should always be grown in pots or boxes in any convenient place, and the same remark applies to Mustard and Cress.—W. W.

Extracts from my Diary.—December 8 to 13.

FLOWERS.—Looking over bedding plants and removing decayed leaves and weeds. Placing in gentle heat a few plants of *Dielytra spectabilis*, Lily of the Valley, and *Prunus sinensis*. Potting a few

more herbaceous *Calceolarias* in 3-in. pots. Potting bulbs of *Ranunculus* and *Anemones*. Re-arranging greenhouses. Tying up and staking *Mignonette*; also *Eucharis amazonica*.

FRUIT.—Pruning Trebbiano Vines, and scrubbing paint with soft soap to cleanse and kill insects that may have accumulated in crevices. Looking over Apples and Pears in fruit room, and picking out all decayed fruits. Giving Raspberries a good top-dressing of rough manure. Looking over Strawberries plunged in leaves, and picking off all decayed foliage. Tying in young shoots of Vines trained on wires for table decoration.

VEGETABLES.—Covering up a piece of Seakale and Rhubarb with manure and leaves. Spawning Mushroom bed outside and turning manure for more beds. Tying and stopping winter Cucumbers. Potting a few more French Beans, and getting in next batch of Rhubarb for forcing. Manuring and trenching ground for Potatoes, and shifting those growing in pots to a house in which they will have more light. Getting up a few clumps of Mint and Tarragon for forcing. Sprinkling a little burnt ashes and lime on Pea border as a preventive of slugs. Placing pots over Seakale ready for forcing; also covering up Endive and Lettuces to blanch, and placing a few more roots of Witloof in Mushroom house for salad. Cutting all Cucumbers ready for use, and placing them in troughs to keep. Cutting Veitch's Self-protecting Broccoli, many of which are still producing good useful heads.—R. G., *Burghley*.

TREES, SHRUBS, AND WOODLANDS.

HOW TO PLANT A SHRUB GROUP.

LET me depict to you, as nearly as I can, what I find to be the usual conception of a well-planted shrub group; I mean a shrub group properly planted according to the standard of most gardeners and lawn planters. It consists simply of an oval or circle of spaded earth, filled to repletion with shrubs planted 2 ft. or 3 ft. apart. Cultivation and mass planting are evidently here kept in view—laudable objects, certainly, in their way—but how about the arrangement of colour and form in foliage and flower? What evidence is shown in such cases of knowledge and adaptation to the various seasons for blooming peculiar to species and varieties? I fear both knowledge and taste here fail lawn planters and gardeners in very many cases. Must we draw the inference that lawn planting skill is at a low ebb among those who should know it best? If not, how otherwise can we account for the fact that knowledge and taste are so conspicuous by their absence in the construction of most shrub groups? One might fancy that the bedding-out system applied to ribbon gardening had furnished models for planting many of our deciduous shrub groups. But no, I would not so insult bedding out, oftentimes excellently done, by making it responsible for such slovenly, unsatisfactory work. Here you have generally a fair study of colour and form, and time of blooming. In deciduous shrub groups, on the other hand, small plants even are frequently huddled where large plants ought to be, and *vice versa*. Perhaps you will say this is mere captious fault finding. I can do no more, then, in defence of these assertions than tell you briefly what I consider a well-planted shrub group. Assuming, first, a knowledge of the seasons of blooming and the colours and forms of shrubs, I would look at any hill-side group of wild plants and get what hints I could from their arrangement. In short, I would ordinarily plant my shrubs 4 ft. apart—in rare cases 3 ft.—dig only a circle of about 1 ft. in diameter around the plant, and fertilise liberally on the top of the ground. Frequent spading for cultivation is as necessary here as ever, and is generally neglected. The Grass must, of course, be kept neatly trimmed among the plants, and though the use of a sickle be found necessary at times, the improved and cleanly appearance thereby attained will fully repay all trouble.

And now a word as to arrangement. It is commonly the habit, where any defined system of arrangement is attempted, to place the large plants in the centre and the low ones on the

outer edges. In a general way this is correct, if the work be not executed in a formal manner. Such grouping is, however, not strictly correct from the standpoint of natural planting. Here and there through the mass, even to the extreme end, taller plants, such as Tamarisks, &c., should be so disposed as to give an irregular wavy sky line. No sharp transitions in height should be allowed; that is, a shrub adjoining this specially tall one should not be sufficiently small to make a sharp contrast. Again, plenty of shrubs of the same variety may be massed in the centre of the group, but on the outskirts more numerous varieties may be disposed. This applies, however, only to groups of considerable size. Smaller groups may be planted with shrubs, each of a different variety. Trees of moderate size may be planted in the group instead of the larger shrubs, which ordinarily should form the high points of the sky line. Large shrubs or low trees dotted singly near points of outer curves also increase the natural effect. Due regard should be given to scattering different colours about the mass, so that a number of red flowers, for instance, may not be crowded in one spot, and none at all be seen elsewhere. The same management should apply to the arrangement of the plants which bloom at different seasons of the spring and summer. I doubt not that many will wonder that so much study should be given to a group of shrubs. But it would not be thought much if it were once understood, and the effect is really greatly superior to the common style of nondescript arrangement. In conclusion, I should say what has been already implied, that culture is obtained as well in this way as in any other. It is also in place to call attention here to the yearly necessity of pruning shrubs at the special season when provision is best made for flowers during the coming years.

S. PARSONS, in *Country Gentleman*.

AUTUMN TINTS.

WHENCE come these? Hitherto we have persuaded ourselves that warm summers, warm dry autumns, and well-ripened wood were quite indispensable to the production of anything like gorgeous autumn leaf coloration. This season has proven quite the contrary, for we have had no summer in the ordinary sense of the word—nothing but wet and cold—and yet I never remember to have seen such fall and rich autumn tints before. The common trees—Beech for instance—have been remarkably fine. Within view of where I write there are some mountain slopes fairly wooded with Beech freely intermixed with other trees, and these slopes alone produced remarkable features, for the trees did not appear to come to maturity altogether. On the contrary, one here might be seen just assuming a yellow hue, there another merging into orange, and again one exchanging the orange for brown, and such browns, full, ripe, brimful of colour; and, moreover, the period during which these changes were produced was of much longer duration than usual. I think that instead of searching for the source of coloration in warm summers and autumns we must rather look for it in a copious supply of moisture, and just sufficient warmth to enable hardy trees to make their growth. Thus circumstanced, they store up a larger than ordinary supply of juices, which, when the proper time comes, gradually but surely undergo that process which changes green to yellow, yellow to red or brown, and so on. Be that as it may, however, the fact remains, and the keen observer has been enabled to make copious notes for future use.

Populus nivea was very charming this season; some of its leaves were bright yellow, others green, and others again showed the silvery under-surfaces. I noticed in one place, close to a piece of ornamental water, a specimen of the Weeping Poplar; this was very fine, the leaves changed first to a yellowish orange, and then to red and full crimson, and they remained so for a long time. The American Oaks have been as bright as could be, showing that for them, at least, we do not require an American sun. The Sumachs have been truly gorgeous, clothed, as they have been, in crimson. The Liquidambars, so highly spoken of as conspicuous in American woods, never become here more than purple, and this year they formed no exception, showing that in their case they want something that we in this country have not got. On the other hand, *Parrotia persica*, in all positions—in full exposure to light, and also in half-shady places amongst other plants—ripened into the most beautiful

tints of orange, pink, crimson, &c.; perhaps the most remarkable of all, however, was a bush of *Stuartia grandiflora*; this, though in a half-shady position, assumed the richest possible hues of orange, red, and ruby-crimson, with a sort of second colour shining through them. The various Maples have been splendid; *Acer colchicum rubrum* was worth going a journey to see; the growing points of this tree are always of a vinous-purple, and this remained until the last, in fact, until all the lower leaves had become bright yellow, thus representing a mass of gold, with purple points thrust up through it here and there. *A. ginnala* assumed tints of crimson, almost vieing with those of the Cardinal-flower. *Rhamnus latifolius* gradually changed from green to yellow, and this went on until the whole bush was rich golden yellow, highly suggestive of what huge bushes of yellow *Calceolarias* would be, and thus they have remained for a long time, and appear likely to continue for some time yet.

What to me has seemed remarkable is that *Cotoneaster Simonsii*, after producing a rich crop of berries (which, by the way, were very late in ripening), almost rendered them invisible by the rich colours assumed by the leaves; in fact, it was quite a struggle between the foliage and berries as to which should be the most conspicuous, and so the effect was quite dazzling. The Ashes also looked quite cheerful in their sombre yellow, beyond which they did not get, and now the Elms—always late—are striving to emulate the Beeches, since departed. Many evergreens have also caught the infection; the Berberies especially are assuming tints quite unusual in their case, the points of *B. Aquifolium* being rich crimson, and *B. Darwini* also changing from green to yellow and crimson. Fruit trees again, especially Pears, have been very fine. Altogether, the tree lover cannot fail to have been highly gratified, and moreover much instructed, by the rich treat which the autumn tints this year have afforded him.

T. SMITH.

Newry.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Large Wellingtonia gigantea.—An uncommonly tall and handsome specimen of this tree is growing in the pleasure grounds at Fonthill Gifford, near Salisbury. It measures 54 ft. 9 in. in height, and girths at 5 ft. above the ground 7 ft. 5 in. This is the tallest *Wellingtonia* by about 2 ft. that I have ever seen; I question whether there is another specimen so tall in England; the girth of stem, too, is also remarkably great, considering the few years it has been in this country. Twenty-six years ago, I believe, Mr. Lobb first sent seeds of this Conifer home, and, probably, this specimen was not planted in its present situation for at least three or four years after, thus showing how rapidly it has grown, averaging nearly 2½ ft. every year since it was planted. Notwithstanding, however, the fast-growing propensity of the *Wellingtonia* I have reason to doubt that it will ever become valuable as a timber tree; some planks of it in my possession, 1 ft. broad and 2 in. thick, are comparatively speaking as light as cork, and, I fear, would not resist the alternations of wet and dry weather, if used for outdoor work, many seasons without undergoing rapid decay.—GEORGE BERRY.

Pyrus Malus floribunda.—It often occurs that we get notices of the good things when they are in flower, which is, of course, at a season when it is too late to plant, and I would therefore bring the merits of this most beautiful deciduous shrub before the readers of THE GARDEN now, that they may take advantage of it to obtain plants, and get them planted as soon as the sharp weather has left us. In growth and habit this *Pyrus* resembles the Quince, having long pendulous twiggy shoots that emit clusters of blossoms from every bud like those of the Cherry in size and form, but instead of being pale as they are, have the lovely rosy tints of Apple blooms, so that a bush or tree of it is a strikingly ornamental object in the spring of the year, and one well suited for any lawn or conspicuous position among evergreens, which help to show it up to advantage. To get it to flower freely it should have an open sunny situation, that the wood may become well ripened, and if sheltered from the north winds all the better, as its beauty is apt to get marred and cut short if the branches are blown to and fro by the cutting breezes that set in from that quarter. Japan has yielded us many hardy floral treasures, and the *Pyrus Malus floribunda* is one of the best, which nurserymen have not been slow to perceive, and anticipating a large demand for it have worked up a good stock. It is more than likely that it will be valuable for forcing, and if it will bear that treatment, neat headed standards would be quite a feature in any conservatory.—S. D.

Pittosporum Mayi.—A short time since I saw a most beautiful plant of this *Pittosporum* growing in the grounds at Prideaux Place, Padstow, on the north coast of Cornwall. It was 18 ft. high, and 13 ft. through. Is this size anything unusual? or does any of your correspondents know of larger or better plants? This one seems

to have withstood the last severe winter without the least injury, whilst at Trelissick, on the south coast, several good plants of it, and also of *P. undulatum*, were killed; and at Porthgidden, only about a mile distant, several fine plants were not in the least injured.—SANGUINEA.

Thujopsis borealis variegata.—This is a very well-marked and beautiful variety of Conifer, much superior to the plants of that kind that have been seen about. I speak of the Bagshot variety, which is in Mr. John Waterer's collection.—H. V.

Tropical Fig Trees.—The accompanying illustration shows well the extraordinary and vigorous character of some species of trees in the Tropics. At home with us tree growth is steady and limited, so to speak; the stems of trees are often formed with some kind of regularity of growth and rotundity. The



Grotesque shapes of a species of *Ficus*.

Fig trees of the South American river valleys, which pile buttress against buttress, and build their stems, have a wild luxuriance and superabundance of vigour of which we here know nothing. I bought a print showing a great Fig tree near Bombay the other day which really embraced in the spread of its many branches bowers, or rather temples, beneath which numbers of people could sit and amuse themselves.—H.

A Venerable Yew Tree.—"A Subscriber" invites attention to a remarkable tree, "believed by many to be the oldest living tree in the kingdom," now in danger of destruction by the axe. It is in the churchyard of Buckland, near Dover, and is known as the Buckland Yew. It appears the church has grown too small for the needs of the parish, and it is proposed to extend it westward, in which case the Yew tree must be cleared away. Our correspondent implores that this may not be done. We cannot offer any opinion on the subject, being unacquainted with the details of the case. But we can make a general remark to this effect—that, as a rule, to which the exceptions are exceedingly few, the enlargement of an old church is a grave mistake. The process spoils the structure, and does not result in a comfortable arrangement for the worshippers. The prudent course to pursue is to build another church and

preserve the old one as a landmark and record of the past. We did that at Stoke Newington, and our dear old parish church, with its tiny spire, remains intact and hugged by the trees that have loved it long.—*Gardeners' Magazine*.

THE FRUIT GARDEN.

PEACH CROPPING AND TRAINING.

MR. COWBURN (p. 458) made certain assertions regarding the disadvantages of the extension system of training, and being asked by me for proof of his statements, he answers that he was taught "in a school evidently superior to that in which the extension system is advocated," which may be so, but he fails to produce evidence of the fact. He complains also that "it is unfair for me at this season of the year to doubt the number of fruits which his trees have borne." May I ask, did he give your readers an opportunity of verifying his statements when he sent examples to THE GARDEN office on August 16, which were "stated to be the remnant of a crop" that he had been gathering for some weeks previously? And now a word regarding the quantity of fruit gathered. I fancy I know pretty well what a Peach tree can do under good culture, but Mr. Cowburn's statements do surprise me, and really require looking into. We are now told that his tree bore "ten good 7-oz. fruit" to the square foot, which is asking us to believe that his Peach tree, 22 ft. square, (484 square feet), bore considerably more than a quarter of a stone of fruit to the square foot, or only two hundredweight less than one ton on the whole—a weight probably greatly exceeding that of the tree itself, roots and branches. Whether such a thing is possible or not, even once in a way, I leave your readers to judge. Mr. Cowburn states that he has obtained continuously such crops regularly for years. It is not the quantity I doubt; there is nothing surprising in that, but the size and quality; and I think it probable that the fruit generally was more like small marbles than anything else, and proportionately poor otherwise, though 7-oz. fruit might have been produced here and there where the crop was thin. When Mr. Cowburn has such another crop to show I would gladly, if well, make a journey to see it. I may remark that the sample of Nectarines sent by Mr. Cowburn to THE GARDEN Office in August simply showed that he had not thinned his crop at all. "Within a space of 6 in." there were five Nectarines, and judging from the space and the way in which the Nectarine bears, these must have been about the size of Gooseberries. J. S. W.

[No; they were good-sized Nectarines fit for any table.]

GIVING MANURE TO FRUIT TREES.

THERE are certain principles easy of recognition which should always govern the application of solid manures to fruit trees. So long as a tree is making a fair average annual growth, according to the variety—and there is much variation in the vigour of different kinds—rich solid manures would be hurtful. This need not, of course, prevent help being given at times when urgently required, either in the shape of a sprinkling of guano or other artificial manure, to be afterwards watered in, or it may be given with good effect in a liquid state. The best time to give quick-acting stimulants is in summer, when the trees are carrying a good crop of fruit and seem to require help speedily. The best time for using solid manures is doubtless in autumn; they should be applied just beneath the surface, but not necessarily in immediate contact with the roots. An inch or two of the surface soil may be removed, the manure spread over, and the soil scattered over again. In the case of very old, exhausted trees, whose roots are for the most part deep in the earth, the manure may be buried deeper, nearer to them, to be the more easily available, and it should be given in greater quantities. Many of the scrubby old Apple and Pear trees that seem past redemption might be brought back to health and usefulness if treated in the manner suggested. The wonder is that it seldom occurs to people to help them in this way. Year after year, what fruit the trees bear is gathered and taken away; the leaves, too, fall and are blown by the wind to the nearest dyke, and no part of the load the trees have carried is given back to them again to help to support them. Small wonder is it then that, after a certain period, their vigour fails. In good, fertile land the struggle is, of course, a protracted one; but even in the best land, after the first flush of youth is over, trees that are bearing heavy crops of fruit need support, and when they cease to make a reasonable growth annually it is time for re-invigorating measures to be taken in hand, and there is no plan so good as the application of rich top-dressings. The way in which the roots of trees seem to find their food, even if placed at a distance from them, is very remarkable; and as it is certain they have this power of discovery, by

placing their food near the surface they are brought within the influence of air and sunshine.
E. HOBDAY.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Late Black Hamburg Grapes.—Allow me to say that the words attributed to me by Mr. Cowburn (p. 496) on this subject are not to be found in my remarks of the previous week. I did not say that Vines started late would mature their fruit "by the beginning of October," or that they could be retarded at starting time "till the latter part of May, or even later." "About the beginning of October" and "till May or later" were my words; and I still say—and am prepared to prove, if necessary—that Black Hamburg Grapes can be ripened in the period I have stated. We were cutting good and well ripened and coloured Black Hamburgs from Vines this season, the first week in October, that had not burst a single bud by the end of April, and we have been cutting from that house until now, and the fruit looked as if it would keep well for another six weeks, as it has done before in the same Vinery and on the same Vines. I have started Vines in November, and cut from them the first week in April; and hundreds of other gardeners have done the same. But Black Hamburgs have been ripened in even less time than this. Mr. Thomson, in his book on the Vine, states that he started a Vinery on the 1st of September and cut the first dish of Grapes from it on the 1st of January. After this, I think your correspondent's "six months, more or less," during which he says the Black Hamburg requires to ripen its fruit may be dismissed from consideration.—J. S. W.

Mistletoe Growing on the Plum.—In the Trinity College Botanic Gardens is to be found, according to the *Gardener's Record*, excellent examples of this curious parasite—so rare in Ireland—growing on a variety of Plum as freely as could possibly be desired. The plants evidently appear quite at home, being in the most robust health and showing an abundance of berries. We are not exactly sure how long it is since they were first placed in their present position, but we should say it cannot be less than ten to twelve years.

Classification of Grapes.—I doubt if that attempted classification of Grapes (p. 423) will meet "a long-felt want," first, because such a want as is indicated has not been felt, and secondly because the said "classification" is too complicated and artificial—no less than sixteen classes and sub-divisions! I do not suppose that it is intended to serve any botanical end, and it will not be popular, for the necessities of culture have compelled us to divide Grapes into three classes, like Potatoes, viz., early, second, and late, and these again into black, red, and white, an arrangement that meets all our needs. If it were desirable to class varieties by their flavour, Muscat and Sweet would describe them all; but to attempt to distinguish between "Sweet" and "Vinous" is next to impossible, and the list is a failure in this respect, for, so far as I understand the somewhat vague term "Vinous," it applies just as well to varieties in the Sweetwater class as to those in the class under that name.—C.

Peach Training at Wilton.—I noticed some remarkable Peach houses at Wilton the other day, new and very well built. The trees, instead of being trained under the roof as usual, are trained on trellises, which form walls across the house, so to say, only leaving the passage free. The houses, being very light from being glazed with large glass windows, these trees enjoy full light from top to bottom, while at the same time the light reaches the back wall to such an extent as to fully perfect the fruit and wood on it. The Peach trees had only been planted a year, yet they had made a very remarkable growth, and were thoroughly ripened. Mr. Challis has the fullest confidence in the plan, and has carried it out thoroughly well.—V.

Doyenné Boussoch.—We gathered this fine Pear at the end of October. It is now (Dec. 1) just becoming ripe, having been lately removed to a warm room. There is no trace of decay at the core, as often happens with this variety if kept a few days only beyond its season for ripening; but, although juicy and refreshing, it has neither the flavour nor the texture peculiar to this Pear in favourable seasons. A few of the forwardest, got earlier, were ready for eating by the first week in November.—B. S., Rutland.

Slugs.—The severity of last winter undoubtedly destroyed many of the birds which usually prove the farmers' friends. Owing to this, and the wet summer, great havoc is even now being made by slugs in many parts of the county of Kent. I have lost already one field of early-sown Rye (about eight acres), and others are considerably thinned. The late-sown Trifolium is also eaten off, and it is to be feared that the Wheat crops upon Clover lays will suffer.—A. B.

AN EDIBLE-FRUITED YUCCA.

(Y. BACCATA.)

THE annexed engraving represents a very distinct Yucca which was introduced into Europe a few years ago from New Mexico and adjoining localities. As may be observed it has a remarkably rigid habit, and has a short thick trunk. The leaves are of a light-green colour, and are erect, sword-shaped, pointed, deeply channelled, and the edges have numerous shaving-like appendages. The flowers are said to be showy, bell-shaped, white, and deliciously fragrant. Its most remarkable peculiarity, however, is the fleshy fruits, the berry-like character of which has suggested its specific name. The fruits are dark purple in colour, from 3 in. to 5 in. long, and are often beaked. These are represented in the woodcut half their natural size. They are described as being of the shape and consistence of a ripe Banana, a name by which they are known in their native country. The taste is sweet and agreeable, and the natives are very fond of them, and gather and dry quantities of them for future use. In an uncooked state they are said to possess cathartic properties.

It belongs to the Cauliscent or stemmed section of the Filament-marginate group of the genus, the species comprising which seem to be but little known at present. As regards its hardiness in this country there are few who have had the opportunity of testing it on account of its comparative rarity, but a correspondent communicated a note to THE GARDEN about this time last year, in which it was stated that small plants of it had stood the previous two winters out-of-doors without injury. On this point, however, any information would no doubt be acceptable.

W. G.

LETTERS FROM SOUTHERN FRANCE TO A GENTLEMAN IN ENGLAND.—No. II.

NICE, Nov. 25, 1879.

MY DEAR SQUIRE,—

I am glad to have your candid retraction, and to hear that the perusal of my letter has given you "more favourable ideas concerning this climate, and a better opinion of foreign parts." Pardon me when I venture to suggest that your incredulity is hardly justified in "never believing a word you hear from a lot of old maids and namby pamby young men, who go about sketching, and come home to gush;" and permit me to express my apprehension that you are in danger of overstepping the boundaries of Christian charity when you say that you "abominate fellows who can't ride to hounds." I am acquainted, I can assure you, with a number of unmarried persons of both sexes who combine a love of the beautiful with a love of truth; and I have met with individuals, brave in the chase, who were very dull and very disreputable when they were not on horseback. At the same time I accept gratefully the compliment which you pay me when you say that my account of the sunshine, fruits, and flowers, makes you long to see that which you no longer doubt; and I must thank you in the name of all France for your gracious condescension in stating, that, if only there were decent hunting and shooting, you would be disposed to come over at once. Unhappily for this nation and for me I am unable to say that the neighbourhood of Nice is a really good hunting country. Without attaching undue importance to such minor obstacles as the total absence of foxes and hounds, I fear that the precipitous hills, the multitude of trees, whose boundless contiguity of shade would make it impossible to enjoy "a break in the open," would be fatal hindrances to the sport of sports. There are none of those pleasant pastures over which we galloped together, *nondum graduati*, in those brave days of old, when Drake hunted the Bicester country, and the stag, stretching forward free and far, went bounding over the big fields and fences in the Vale of Aylesbury. There are none of those awful, yet beloved walls, such as fluttered our hearts nigh the grove of Bradwell, when my lord Redesdale was master of "the Heythrop," and Jim Hills and Jack Goddard led the van.

As to shooting, I watched yesterday the bold Chasseur, with his gun slung over his back, saw him suddenly stop, and gaze intently, as one who spies his quarry from afar, and then, bending low and screening himself under the long reeds growing by the wayside, begin to stalk his game. He came within gunshot range, he knelt silently and slowly, he took a long deliberate aim, he fired, he started to his feet with an alacrity and vigour full of joy and hope, he rushed through the reeds into the Vines beyond, and came back erect, heroic, jubilant as a conqueror from the fight, holding in his bloody

now and then, like the *pain roti* which we have at breakfast, and which is sometimes sent toasted brown on one side, white on the other, and untouched by the fire; and at the present the sky is overcast, and a gentle rain is falling (in every clime *some* rain must fall), but the air is so mild, and the foliage so refreshed, that the garden looked this morning as our gardens look on a dull morning in early June.

This garden, and the grounds about it, are formed by alluvial deposits, brought by the rivers and mountain streams, and they are protected on the east, north, and west by the



Edible Fruited Yucca (*Y. baccata*) with fruits; the larger one half the natural size.

hand—and regarding it proudly, as though he had just been made a baronet—a poor little linnet, which we call in Nottinghamshire a spink. So that I cannot hope to see you from these inducements, and must, in consequence, transmit to you by letter, in accordance with your request, some further particulars concerning the trees, and the flowers, and the fruits which grow *sur ce sol favorisé du ciel*.

But I must first obey my conscience, which bids me tell you that the glorious weather of which I wrote to you is not without its interruptions. For two or three days it has been so hot in the sun and so cold in the shade, that I have felt,

hills, which form a crescent round them, or, to use an illustration more congenial to your taste, an horseshoe, with the toe towards the north; so that we of the suburbs seem to live in one vast garden, or rather in a series of gardens, dotted here and there with picturesque villas, many-coloured, having their walls white, their roofs red, their *jalousies* green (Shakespeare says that jealousy is green), and so fertile that, if your temperament is sanguine and your imagination lively, you may plant the stick of an old parasol at night, and expect to see an Umbrella Pine in the morning.

Very abundant and very beautiful in the Riviera are these

Umbrella Pines; but what would you say to the *Araucaria excelsa*, the Pine of Norfolk Island (of which I remember an admired specimen about 8 ft. high in your conservatory) growing up a great tree *al fresco*? How you would delight in the Magnolias, 30 ft. in height, with their vermilion seeds gleaming among the grand foliage; the graceful Pepper Tree, with its Acacia-like leaves, and its red clustering berries, and the Acacias themselves, longiflora and many others, large as your Laburnums, and covered with their yellow flowers! How astonished you would be if I could take you into the city of Nice, and show you that, which is perhaps the fairest surprise of all, the row of Palm trees with Oleanders in alternation (the former laden with Dates), which extends, with a graceful sweep from the Promenade of the English by the sea to the Place of Massena (so named in honour of the Marquis, who was born at Nice), and ending with the noble specimen of *Eucalyptus*, which, though only planted fifteen years ago, has a trunk and branches such as would not be seen on our forest trees in England in less than fifty or sixty years. Son, say I will take his measure and send it you; but now, having you (mentally) in Nice, I must take you up to the Castle, and show you, as we mount the hill, the wonderful Aloes, growing anywhere and anyhow, and, though their inflorescence is over, assuring us by their giant stalks, long enough and strong enough to hold a salmon, how glorious their beauty has been. And as we reach the summit, what a panorama! Let the old man point out the house in the Rue de Smollett, in which resided the author of "Humphrey Clinker;" and let him show you the home in which Garibaldi was born; and try to sympathise with the Frenchman's pride when, looking eastward over the sea, he tells you that the speck which on a fine clear day you may discern, is Corsica, the birth-place of Napoleon!

But these surprises of loveliness are incessant. Palms, encircled by red and white Roses, and by scarlet and yellow Nasturtiums; the blue flowers of the Plumbago intermixed with the crimson blooms of the Bignonia; the exquisite *Dahlia imperialis* (truly an empress among the flowers) nearly reaching the window of a second floor; the Locust tree covered with fruit-blossoms; the Tobacco tree with its yellow tubers; all the flowers which I named in my last letter, and many others, which, as yet, I have not seen. Can we wonder that such titles as "Hotel de Paradis" should be selected by the happy innkeepers of Nice, or that the people generally should hold as an article of their creed (Nicene) that the place of their habitation is *La Baïedes Anges*. It is no fault of theirs if some of the visitors, especially those who come here that they may gamble at Monaco, suggest very different and less refined associations.

Believe me to be

Yours ever sincerely,

S. R. H.

Horticultural Millinery.—In passing through a country village the other day, I noticed a Thorn bush in front of a cottage that had been cut and tortured into some faint resemblance of a peacock. The owner, no doubt, admired his handiwork, and it gratified his vanity to see the rustics gazing at it; but, as regards real utility, the value of his labour was *nil*, and in so far as it tends to create a morbid taste for distorted natural objects, so much harm will accrue. It may be said the man with an imitation of a peacock in front of his dwelling is only a humble imitator of the great men who have gone before him in outraging Nature by cutting and trimming Yews and other trees and shrubs into all sorts of shapes more or less grotesque. The same evil spirit that presided over the topiary work of a previous generation is still extant. It was seen a few years ago in the polychrome patterns of cut Box, and the geometrical figures filled with broken bricks, slates, and stones. It is now seen in the carpet beds, that, first started in the London parks, spread all over the country.

And doubtless, when these have passed away, the same passion for improving Nature will be developed in some other direction. But a well grown, that is, a naturally grown tree or plant, always gives pleasure; monstrosities of Nature distorted never retain their hold upon our affections long. The eye wearies of the regular lines of the cut trees or the embroidered pattern, but it is never tired of resting upon the naturally irregular outline of the Oak, or the Cedar, or any other tree or plant where the hand of man has been restrained from doing more than regulating or aiding natural development.—E. HOBDAV.

GARDEN DESTROYERS.

THE GAMMA MOTH.

(PLUSIA GAMMA.)

THERE are several insects which occasionally appear for one season in very great profusion, and then perhaps for a few years are comparatively seldom to be met with; among them is the gamma moth, whose appearance this year in many parts of England and the Continent in extraordinarily large numbers has excited much interest and alarm. The reason why some insects at times are so very much more abundant than at others is by no means well understood, and this year it is particularly surprising that after the severe and long-continued cold weather of last winter any insects should be unusually common; indeed, insect life generally has been far from plentiful this summer. Cold weather, however, does not have so much effect upon insects generally as many persons imagine; certain grubs have been frozen until the contents of their bodies were a mass of ice without being killed, and, on being gradually thawed, their animation has returned; but a combination of wet and cold has often had a most fatal effect upon caterpillars. It is, however, certain that the gamma moth and the painted lady butterfly have not suffered much from any adverse circumstances this year; had last winter been mild and the spring warm and genial, one could have understood any insect being commoner than usual, but such was not the case. For some reason, however, a wet season seems to be particularly favourable to this insect, for in several years when it has been more than usually abundant, the weather has been particularly wet and cold; whether under these circumstances some favourite food plant is in a condition peculiarly favourable to the health of this insect, or whether the inclement weather may have had a very fatal effect on their parasitic enemies, or what the reason is is uncertain. The gamma moth is wonderfully prolific, and it is no doubt mainly owing to its natural enemies that this insect does not attain maturity in even larger numbers; for there are two and sometimes three broods during the season, and it has been calculated that a female will lay 400 eggs; if these all lived, hatched, and duly underwent their transformations, 200 females would be the probable result, which at the same rate would lay 80,000 eggs, and produce 40,000 females, whose eggs would number sixteen millions. The injuries caused to various crops in this country by the caterpillars of this moth are usually comparatively slight, but this year much damage has been done to all kinds of vegetable produce by them; they appear to be almost omnivorous, as they have been found on nearly all culinary vegetables. They appear to be particularly partial to the leaves of Peas, Beans, Beetroot, Turnips, and Potatoes, in addition to which they are very fond of Hemp, Flax, Clover, and Grass. In ordinary years on the Continent various crops suffer much more from these caterpillars than they do in England. This year the Beetroot crop in some parts of Germany has suffered most severely; in fact, in some places the crop is almost destroyed. In Saxony and Hanover, the yield is only estimated at one third of the usual amount, and, owing to the loss of their leaves, the roots which have been saved are badly grown, and sadly deficient in saccharine matter. The *Cologne Gazette* has published a description of a machine which has been invented for collecting these caterpillars, which consists of a series of brushes, which sweep the insects into tubes, from which they fall into a receptacle; the machine is composed of seven of these tubes and brushes, and cleans seven rows of Beet or Turnips at one time, and if drawn by a horse or ox 12 or 13 acres may be gone over in one day; at Halle 6 to 8 bushels were collected per diem by one of these machines, and on another farm in the same neighbourhood, where several machines were at work, 2½ tons were collected in one day. Large numbers of the moths have been killed by lighting fires in Clover fields and dragging a rope across the field to disturb the moths, who will, when roused, fly into the fires; but as usually only males are killed by this method (for the females are not so easily disturbed) it is not considered to be of much use. Fortunately for us in England we have not been troubled by this insect to anything like this extent; in our gardens we cannot do better than pick or shake them off the plants and kill them. We

have, fortunately, the assistance of various birds in this work, starlings and sparrows being particularly useful; parasitic Ichneumons no doubt play an important part in keeping these insects in check. The genus *Plusia* contains several species, and is classed in the family Noctuidæ. *Plusia gamma* differs somewhat in its habits from its congeners, who are seldom seen on the wing before dusk, for it flies about all day long, and in all weathers fluttering over flowers, sucking their nectar through its long proboscis, and darting quickly away when disturbed, much in the same way as a humming-bird moth does; when on the wing it is very difficult to catch, even with a butterfly net. It is a very widely distributed insect, being found generally in this country and on the Continent, the northern parts of Asia, and in North America. It has been noticed in unusual numbers in many places this summer in England, especially in the southern counties in August, and particularly about the middle of the month. Mr. George Norman in the "Entomologist Monthly Magazine" mentions having found it swarming to an extent he had never witnessed before at Pitlochry in Perthshire on the 8th of June, and for a week afterwards. On the Continent it abounded nearly all the winter in the Riviera, and was seen in great numbers early in June in the Splügen Pass flying northwards. It was very abundant in Germany, as before

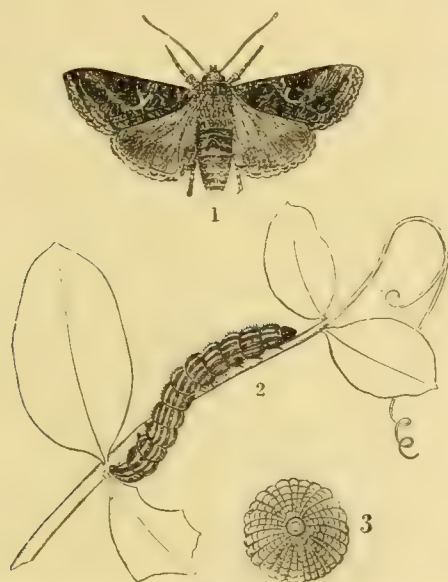
and legs are dark greyish-brown; the antennæ are long and smooth, and the eyes during life very brilliant. The thorax is crested and covered with long downy hairs, and on the upper part of the body are two tufts of down. The full-grown caterpillars are about $1\frac{1}{2}$ in. in length, and covered with short hairs. Their heads are greenish-brown and their bodies greenish, with six white or bluish-white, longitudinal, narrow stripes, with a yellowish band on either side below them. They may easily be distinguished from most of the caterpillars of this family by the number of their legs; this species has only six pairs, which are placed on the three first, the eighth, ninth, and last joints. Owing to this arrangement of their legs, the caterpillars when in motion much resemble the loopers or larvæ of the Geometridæ in their actions; stretching out their bodies to their full length, they hold on tightly with their three pair of front legs, and then hunching up their backs advance the after part of their bodies. The chrysalis is dark brown in colour, and has a protuberance from its breast which covers the long tongue of the insect. The eggs are somewhat hemispherical and very beautifully striated; they very much resemble an echinus or sea egg, divested of its spines, in appearance.

G. S. S.

FILMY FERN GROWING IN LONDON.

A WELL-GROWN collection of Filmy Ferns is by no means a common occurrence, especially in large towns, but, notwithstanding the adverse circumstances attending town culture, one of the most thriving and choicest collections that could possibly be desired is located at Upper Grosvenor Street, Mayfair. This collection belongs to Mr. Cooper Forster, a gentleman who has for many years been an enthusiastic admirer and successful cultivator of these charming plants. His success is all the more remarkable as there are few of the more important classes of stove and greenhouse plants of which the culture appears to be so little understood generally as that of the filmy-fronded group of Ferns. This circumstance has, no doubt, arisen from the imperfect knowledge of their native habitats, and the degree of heat, moisture, light, and other atmospheric conditions which is best suited to their requirements. A parallel case is the Orchids, and especially the so-called cool-house section, which made comparatively little progress until an approximate idea of their native habitats was obtained as a standard of imitation. Orchids, however, as a rule, differ widely from Filmy Ferns, inasmuch as the former are generally confined to certain regions, which, whether tropical or sub-tropical, can be imitated tolerably well. But this is not so with Filmy Ferns, the majority of which are so widely distributed that it would be difficult to follow any definite rule with regard to according them a certain amount of heat. A striking example of this is afforded in one of our native Filmy Ferns, *Trichomanes radicans* (the Killarney Fern). Besides being found in Ireland and Wales, it extends to South and North America, the West Indian Islands, Africa, Northern Asia, and other places. In the case of this species, it may be grown in the open air in our climate, as may be seen in the York Nurseries, where it thrives admirably in caves, or it may be grown in a stove temperature, as may be seen in the tropical Fernery at Kew, where the Madeiran form of this Fern is cultivated in the same temperature as those from the hottest parts of Java, Borneo, &c. That all these apparent difficulties may be overcome there is sufficient evidence in Mr. Cooper Forster's collection, which also exemplifies the simple appliances that are necessary for cultural purposes. It should be remarked, however, that the really strictly tropical species are excluded from this collection, as they are found not to thrive satisfactorily with the cool section, which is by far the most numerous, as well as the most beautiful.

The structure in which the collection under notice is grown abutts on the dwelling house, and is about 6 ft. square, and so arranged that it can be looked into from two windows. The roof is curvilinear, and is provided with shutters with which to shade the Ferns during summer, and afford protection from severe frosts in winter. The rocky bed in which the Ferns are planted is raised 2 ft. above the outside case, and rests on a strong iron grating, beneath which is what may be termed an air trough, *i. e.*, a space for the purpose of maintaining a more equable temperature. Thorough drainage is afforded throughout the entire bed, so that there is a rapid percolation of water, a point of much importance, as stagnant water at the roots seems to be very prejudicial to the well-being of these Ferns. Over the surface of the bed are placed rugged blocks of sandstone, portions of Tree Ferns, &c., at the foot of which are planted the Ferns which delight to cling to the sides of these objects. Care is taken to induce an ascending position, as Mr. Forster has found by experience that raising the plants a little is very beneficial to them; whilst on the other hand they soon get into an unhealthy condition if planted too low, or become in any way too much encumbered with soil or other material. A compost of fibry peat, broken sandstone, and Sphagnum Moss is used for planting, and a layer of the latter



1, *Plusia gamma*; 2, Caterpillar; 3, Egg (very much magnified).

mentioned. It seems probable that many of the swarms of gamma moths which have been found on our southern coasts were not bred in this country, but I am not aware that any have been actually seen crossing the channel, though they have been found on the seashore in great numbers, and there seems no reason why, with a favourable wind, they should not have crossed from the Continent. The specific name gamma has been given to this insect on account of the resemblance the white mark on either upper wing bears to the Greek letter gamma γ . The moth makes its first appearance in May, and may be found during the summer till October. The females lay their eggs in clusters on the undersides of the leaves of various plants, the caterpillars are hatched in ten or fifteen days, and, being very voracious, increase rapidly in size. They attain their full size in about three weeks, having changed their skins four times; they then each spin a fine silken cocoon of loose texture on a leaf or stem, within which they undergo the change to the chrysalis state, and in about three weeks time appear as perfect insects; these in due course lay eggs, and the metamorphoses are again gone through. Under favourable circumstances the transformations probably take less time, and there would be a third generation. The moths are about $\frac{3}{4}$ in. long, and measure $1\frac{1}{2}$ in. across the extended wings. The upper pair are dark chocolate-brown in colour, with a coppery lustre in certain lights; there is a very pale straw-coloured y-shaped mark somewhat on the basal side of the centre of the wing. The end margins of the wings are somewhat paler, and have a dark wavy line on their inner edge, within which again are sundry lines and mottlings, which appear to vary a little in different lights. The lower wings are of a smoky brown, with a broad, dark, blackish-brown band on the outer margin. The fringe is white, with a row of dark spots. The head, thorax, body,

is strewn over the surface in order to retain moisture. Considerable care is taken with regard to watering and syringing, as some kinds require a liberal supply, both overhead and at the roots, while with others it is necessary to withhold water altogether at different seasons. The present time is the season at which they are kept the driest, though of course some require a sprinkle now and then throughout the year. A couple of frames on the "leads" at the rear of the house affords accommodation for a small supplementary collection. Whether it be from the more confined atmosphere, or from the temperature being raised by being directly above the kitchen, cannot be satisfactorily determined, but the plants thrive in the position just named remarkably well, and even better than in the larger structure.

The more striking examples in this collection consist of an excellent specimen of *Trichomanes meifolium*, which is not only one of the rarest of all Filmy Ferns, but one of the most elegant. Indeed, it is unlike the majority of the other kinds, and resembles the better known *Todea superba* more than anything else to which it can be compared. The rare *Hymenophyllum caudiculatum* forms a fine mass of fronds, and nothing can well exceed the beauty of its transparent fronds when covered with the minutest drops of golden dew. Near to this species is a thriving plant of the New Zealand *H. scabrum*, which is remarkable for the chaffy hairs that clothe its stalks. The wonderful luxuriance of that most singular of all the Filmy Ferns, *Trichomanes reniforme*, is also a sight rarely met with. The specimen measures about 15 in. across and has fronds fully 4 in. in diameter, a size exceeding that it attains in its native habitat. This, however, is not the largest size it has been grown in this collection, Mr. Forster having once had a plant with fertile fronds until destroyed with thrips. The broad pellucid kidney-shaped fronds of this lovely species contrasts strikingly with the finely cut fronded kinds.

Of the Chilean *T. exsectum* there is a superb mass, with its pendent fronds like a beautiful finely-divided green sea-weed. This could not possibly thrive better if hanging from the roofs of dripping caverns, as it is said to do in its native country. By the side of the last is the exquisite little *Hymenophyllum chilense*, which is extremely rare in cultivation. It is growing on a piece of pottery-ware, in imitation of tree branches, and by the manner in which the roots cling to the moist surfaces, it evidently meets its requirement in such a position. This kind is without doubt one of the most beautiful of the smaller-growing group. The noble *Trichomanes dilatatum* has attained remarkable growth, having wavy fronds over 1 ft. long, which are so exquisitely veined, yet so thinly transparent that even small print could easily be read through the young ones. With our beautiful little Tunbridge Fern (*Hymenophyllum Tunbridgense*) Mr. Cooper Forster is particularly successful, for it is seldom seen in a healthy condition. Here are broad masses of it which are clothed with myriads of glistening fronds. A point in its culture which is strictly observed here is not to allow it to be watered overhead, but the soil only is moistened. The twining *Trichomanes Luschathianum* and *auriculatum*, that ascend from 10 ft. to 20 ft. in height in the Brazilian forests, are here healthfully twining pieces of Tree Fern, from which they apparently derive all their needs.

The very elegant *T. trichoides* with its delicate hair-like fronds, radiant with dewdrops, forms a network with its slender rhizomes over a miniature mound, and near to it is another variety, which is considered to be either the rare *Hymenophyllum multifidum* or *H. pectinatum*, two species very similar in appearance, but coming from two widely different countries; the former from New Zealand, and the latter is a native of Chili. Another rare Chilean species is *H. fuciforme*, one of the larger growing kinds with triangular shaped fronds. Then there is the North American *Trichomanes Petersii*, a pigmy growing species, which is found near a waterfall in Alabama State; this, with the charming little *T. venosum* which clothes the trunks of Tree Ferns in New Zealand, are luxuriating finely; also the rare *Hymenophyllum polyanthos*, *H. asplenoides*, *H. nitens*, *H. sericeum*, *H. hirtellum*, *H. pulcherrimum*, *H. flexuosum*, *Trichomanes tamarisciforme*, and many others. The larger growing kinds are likewise well represented, including fine examples of *Todea pellucida*, *T. superba*, *T. Fraseri*, and its near, but rarer, neighbour *T. Wilkesiana*, all developing a profusion of their feathery fronds in almost native luxuriance. Thus it may be seen that the culture of Filmy Ferns is by no means so beset with difficulties as some people imagine, and, moreover, it further proves that an elaborate structure is not indispensable to successful treatment. It would be difficult to imagine a more charming structure for a town house, seeing that it entails such little attention, for the plants merely require an occasional sprinkling from the finest watering-pot in order to render the whole of the diversified graceful verdure a lovely mass radiant with tiny dew-drops, which glisten like polished emeralds. Even in ordinary window-boxes these delicate textured plants may be grown

very successfully, and an excellent example of it may be seen in this house, for there is a closed case containing one of the finest and healthiest masses of the Killarney Fern I ever met with. In another window case there is a mixture of various kinds such as *Todea pellucida*, the Tunbridge Fern, *Hymenophyllum demissum*, *Trichomanes venosum*, and others, while in a corresponding window was a healthy case of ordinary cool-house Ferns, amongst which the beautiful *Gleichenia rupestris* was thriving capitally.

W. G.

NOTES OF THE WEEK.

Covent Garden Market.—On account of the present severe weather the trade in fruit and vegetables has been checked considerably, for not only is the produce already in the market much injured by the frost, but on account of the slippery state of the roads through the frost the growers cannot send their produce to market. Apples from America and Canada still continue to arrive, but even in the case of these in some of the barrels there are layers of ice, the result of frozen moisture given off by the fruit.

Imported Fruits.—The first cargo—or part of a cargo—of Apples, imported direct from New York by a Newcastle fruit dealer, was delivered on Saturday last, November 29. Considerable endeavours have been made of late to establish a direct business in fruit with New York, and it will be well if dealers will content themselves with something like a reasonable profit. Good table fruit is not to be had except at famine prices—6d. per lb. for Baldwin's, and 8d. for Newtown's being in many retail shops the lowest prices. The parcel of fruit just to hand in Newcastle market consists of 328 barrels of Apples, and forty boxes of Grapes. Good Grapes of local growth are realising something like 3s. per lb. in the Sunderland and Newcastle fruit shops. The supply of Almerian Grapes appears to be fairly good, but perhaps the most plentifully imported fruits are Pomegranates, of which large quantities are being sold. Pears from the Channel Islands are realising good prices, viz., from 6d. to 8d. each for moderate-sized fruits.—TYNEDALE.

A New Seedling Lily.—Mr. Hovey, of Boston, U.S.A., has sent us a wax model of a very fine seedling Lily, which he has raised. Its general appearance is that of *L. speciosum*, but its larger size reminds us of *L. auratum*. The colour, too, is much richer than that of the former, and the spotting more profuse. The original bulb, Mr. Hovey writes, bore two stems this year, each 5 ft. high, and produced twenty-five flowers. From this it appears that we may expect finer kinds of Lilies to result from hybridising than original species.

Macken's Cyrtanthus (*C. Mackeni*).—The chaste beauty of the flowers of this rare Amaryllid, from Port Natal, commends it to the notice of every one. Unlike the older and better known *C. angustifolius*, the flowers are pure white, but, like those of that species, they are trumpet-shaped, with a curved tube about 2 in. long. They are borne in a terminal cluster, numbering from four to eight on an erect stalk about 1 ft. high, and they are, moreover, deliciously fragrant. The Grass-like foliage is similar to that of other kinds. These valuable qualities, combined with its free-flowering habit, and that at a season when flowers, and especially white ones, are scarce, render it a desirable acquisition, and one that will, when it becomes more generally known, gain much favour. It will also probably become a remunerative flower for market purposes.

A New Variety of Pteris serrulata.—We have received from Mr. W. Soper, 283, Clapham Road, a finely-crested form of this Fern, surpassing all of the cristate or tasselled forms which we have hitherto seen; indeed, it is more like a finely-divided pellucid frond of some of the Seaweeds than a Fern, the fronds being much thinner in texture than usual, and of a lighter and therefore a more pleasing green tint. A large specimen of this variety would, we should think, make a very effective decorative plant.

Winter-flowering Begonias.—In a house mainly devoted to these valuable plants in the Royal Exotic Nursery, Chelsea, one named *B. insignis* is pre-eminently the kind to recommend for general utility on account of its elegant habit and great profusion with which its pretty pink flowers are produced. It is also a capital plant for cutting from. Another, named Moonlight, a smaller growing kind with white flowers, is likewise a desirable plant, as well as one called Louis Van Houtte, which has salmon-tinted blooms that are borne abundantly throughout the winter. These, and several others of the better known kinds, are capital subjects with which to enliven a house during the dull days of winter. In this nursery a fine effect is obtained by mixing with the Begonias plants of the brilliant purple-flowered *Lasiandra macrantha* and other showy subjects.

Dominy's Cattleya (C. Dominiana).—This lovely hybrid, which is one of the most successful results amongst the many with which its raiser is connected, may now be seen in full beauty in Messrs. Veitch & Son's nursery at Chelsea. It is a cross between the gorgeous *C. labiata*, which every Orchid lover knows, and the pretty *C. amethystina*, one of the two-leaved kinds. Its flowers are intermediate in size between those of the two parents; they are of a delicate blush-white hue and are wavy, as in *C. labiata*; the lip is of a rich amethyst tint with a pale lemon centre, and is much crisped at the margins, which renders it very handsome. Though it was first flowered and exhibited over twenty years ago, it is still amongst the choicest and rarest of plants belonging to this handsome genus.

Eucharis candida.—This comparatively rare bulbous plant at first sight reminds one of its lovely and well-known congener, *E. amazonica*. Its flowers, however, differ from those of the latter in being somewhat smaller, the corona being longer, more deeply toothed, and having a zone of yellow instead of green at the base. The flowers are produced in succession in the same umbel-like manner as those of *E. amazonica*, but they are pendent, a circumstance which adds greatly to their distinct appearance. It was introduced a few years ago by Mr. Bull from the United States of Colombia, and a coloured illustration of it was given in *THE GARDEN* in 1876 (plate XVI.). We saw it in flower a few days ago in the T range of houses at Kew.

Oncidium dasyle.—Sir W. Marriott sends us from Down House, Blandford, a raceme of flowers of a fine variety of this comparatively rare Orchid. The flowers on the spike sent are larger than we have hitherto seen them, and the markings are more clearly defined. The jet-black boss in the centre of each bloom is very singular and much resembles the back of an insect. This *Oncidium* is a kind that thrives well in an intermediate house.

American Aloes in Ireland.—A photograph showing a fine specimen of the American Aloe in flower has been sent to us from Cabinteely, Co. Dublin, and along with it the following memorandum concerning it:—I send, our correspondent says, a photo of an Aloe americana that flowered here last year—a plant which never got any particular treatment except mats put over it every winter. I calculate that it was between fifty and sixty years old. The height of the flower-stem was 22 ft. 6 in.; number of branches thirty-six, flower-spikes 120 on each, total number of flower-pips 4320; colour light dull yellow. The flower-stem began to appear the last day of May and advanced till September. When it began to flower, as one whorl of flowers came out the lower one shed away, so that it was never out all at once. The flowers stood all the frost of last autumn, and in January I dug the plant up and put it into a shed. I have it still as a relic, but it is of course quite dead. As I saw a query in *THE GARDEN* the other day about the height of Aloes I may mention that many years ago one which flowered near this part reached a height of 35 ft., and I heard of one many years ago, somewhere in Limerick I think, that reached 45 ft. I ought to mention that some days the stem shot up nearly 1 ft., others not an inch.

Callicarpa purpurea.—There are at present several plants of this in the Botanical Gardens, Birmingham, bearing bright purple berries. They are produced in clusters at the axils of the leaves, and give the plant a very handsome appearance.—J. S. S.

Orchids at Avenue Road, Regent's Park.—The rich collection of these plants in Mr. Philbrick's garden contains even at this dull season many rare and beautiful kinds in flower. Some time ago the Cattleya house contained some fine examples of *C. labiata*, including the true variety, and soon it will be equally showy with large masses of *Laelia anceps*, which have produced several dozens of flower spikes, and amongst these the lovely and extremely rare white variety, *L. anceps alba*. The Hand-bearing *Oncidium* (*O. cheiroporum*) is well represented by a fine example bearing thirty racemes of its waxy yellow flowers, which yield a grateful fragrance. In the same house are flowering plants of *Cattleya maxima*, with its beautifully veined and crisped lip, and *Laelia marginata* and allied forms. Of the charming little gem *Sophranitis grandiflora* there will soon be some fine masses in flower. It seems to thrive admirably on cork blocks in this collection, combined with a moderately low temperature. Another house is gay with a large quantity of the fine old *Cypripedium insigne*, and its varieties *Maulei* and *Chantini*, the latter a very fine form, even finer than *Maul's*. In a house devoted mainly to East Indian kinds all are in the most robust health, especially the lovely Moth Orchids (*Phalenopsis*) which for number, size, and vigour will favourably compare with any collection we know of. Of these there are in flower the Bornean and Javanese forms of *P. grandiflora* with long branching flower spikes and blossoms 3 in. across; also *P. amabilis*, another white flowered very fine kind. The huge specimens of *P. Schilleriana* will soon be a fine sight, as most of the plants have developed long, branching flower

spikes well set with buds. The fogs, however, which are prevalent in London at this season are very prejudicial to the culture of these Orchids, as in foggy weather the flower buds turn brown and drop off, hence a fine show of bloom cannot be ensured under such circumstances. Amongst cool house kinds the rare *Masdevallia tovarensis* is represented by several plants bearing a profusion of lovely white flowers, and some of the stems are bearing three expanded blossoms. The bright orange-scarlet *M. ignea* is also in flower, as well as the almost perpetual flowering *M. Veitchii*. Of the curious little *Restrepia attenuifera* there are several varieties differing in size and colour of their flowers. Various varieties of *Lycaste Skinneri* also enliven this house, and in another cool house are fine plants of *Odonoglossum bictoniense* in flower, and also the exquisite *O. Rossi* major, one form of which is particularly noteworthy, as the flowers are larger, and the colour brighter and more clearly defined than those of the type.

Hardiness of Todea superba.—One of the prettiest sights that we have seen for many a day was a house in the Pine-apple Nursery, Maida Vale, devoted to several hundreds of fine plants of this charming Fern, the feathery plumes of which were partially covered with hoar-frost, which, combined with the deep green verdure on the fronds, had a charming effect. The house in which they are growing is quite devoid of any means of heating the air, which on one or two nights during the past week was several degrees below the freezing point. This circumstance, in itself, affords ample proof that this species is by no means a tender plant, and therefore does not require the coddling treatment which is generally accorded it. The houseful of plants in question appeared to thrive best under cool treatment, as all the specimens which it contained have fully developed very healthy fronds, and all, without exception, possess a firm central crown of incipient fronds, which now emit short, tender roots—a sure sign of good health. The present season is not the only one during which these Ferns have been subjected to such cool treatment, for, on the contrary, the same system has been carried out for some years; and even the plants under notice passed through the last memorable winter at an unusually low temperature.

The Weather at Bedford.—During the night of Monday last, the 1st inst., and also at 8 a.m. on Tuesday morning, a self-registering Negretti and Zembra's thermometer affixed to a garden wall at 4 ft. from the ground, in the rear of a dwelling-house in Bedford, nearly a mile from the river Ouse and at a considerable rise therefrom, registered 26½° of frost, and during the following night the minimum registered was 24° of frost. These are two of the coldest successive nights I have ever remarked, and at no time during last winter did the same thermometer descend below 10°, which was registered on the morning of December 24 last. As far as I can at present ascertain the indications of injury to vegetation at the experimental garden at Girtford are not serious.—T. LAXTON, Bedford.

—At Clumber the thermometer is stated to have indicated 31° of frost on the morning of Tuesday last, and 25° on that of Wednesday.

Chinese Primulas.—Messrs. Webb & Son, of Wordsley, Stourbridge, have sent us flowers of some fine varieties of these popular winter flowers, which are not only large, and their margins finely fringed, but exhibit a great variation in tint, there being every shade from deep crimson to the purest white.

Dendrobium formosum giganteum.—This showy Orchid is now finely in bloom in Messrs. Low's nursery at Clapton. It is strikingly beautiful, well worthy of a place in the most choice collection, and the fact of its flowering at this dull period of the year adds much to its value.—J. C. B.

The Shrubby Dracæna (*D. fruticosa*).—As a rule, *Dracæna* flowers are not remarkably showy, but to this the present plant is an exception. Its waxy-white flowers are borne in erect panicles. They have recurved sepals, very similar to the small Roman Hyacinth, but lacking its rich odour. It is a continuous bloomer from October to December, and would be found very useful until the supply of winter bulbs comes in. We lately saw it in the Palm House, at Kew.

The Hailstorm Relief Fund, 1879.—The committee entrusted with the distribution of this fund have now completed their labours. A list of subscribers to the fund accompanies their report on the subject, as well as a balance-sheet, from which it appears that the total of subscriptions amounted to £1013 15s. 7d., out of which £937 14s. 3d. was distributed in relief. The committee heartily thank the subscribers of all classes who placed in their hands the means whereby they were able to mitigate much of the distress of some of their suffering brethren; the clergy and ministers of all denominations for their valuable and practical sympathy; the investigation committees for much self-denying labour; and all who in any way assisted to make the fund answer the purpose which it was intended to serve.

Salvias in Winter and Spring.—Long as *Salvias* have been in cultivation few know them as they should be known. At this season they are invaluable for warm and even for cool greenhouse decoration. *S. leucantha*, *splendens*, *pseudo-coccinea*, *cacaliifolia*, *Hoveyi* (*ianthina*), *gesneriflora*, *patens*, and *Betheli* (*involuta*) would give a charming range of form and colour, beauty, and grace of port not readily equalled by any other genus during winter and spring.—B.

ANSWERS TO CORRESPONDENTS.

Vines.—My three years' old Black Hamburgh Vine planted in an outside border has this year made much stronger growth near the top than at the bottom. What, therefore, shall I do to improve the growth near the bottom another year?—J. W. [Suspend them in a horizontal position until the lower buds have all fairly broken, and the young shoots produced by them are somewhat in advance of those nearer the top.—W.]

Planting Asparagus.—A. B.—We should not recommend Asparagus beds to be made in the old-fashioned way. The ground to be planted should be manured and trenched now to the depth of 2 ft. or more if the soil is of good quality, but bad soil should not be brought to the top. About next March or April give a dressing of salt and fork it in, and, as soon as the Asparagus makes its appearance above ground, select good two-year-old plants and plant them in rows, 3 ft. apart each way. Open pits wide enough to enable the roots to be spread out properly, and fill the holes up with prepared compost, in which the decayed garden refuse forms a chief part, covering the roots about $\frac{1}{2}$ in. deep. Where the land is good the compost may be dispensed with; but, if a quick return is desired, we should always recommend it if procurable. No Asparagus must be cut next year, but if all goes on well a few heads may be cut the year following. A light summer crop of Lettuces, Spinach, or Radishes may be taken from between the Asparagus plants the first year; afterwards the tops will meet and require all the space. Annual top-dressings and cleanly culture will be all that is required.—E. H.

Wintering *Salvia patens*.—E.—Plants of this *Salvia* should be lifted from the open ground, and having the soil well shaken off from the roots, be planted in fine dry soil in a greenhouse or in a cold frame, and be so far protected that frost shall not get to the roots, which are tuberous like those of the *Dahlia*, but less fleshy. In this way they keep better than when dried and put away in sand or on a shelf. Plants in pots should have the stems cut down to the soil, and then be placed under a greenhouse stage until March, when if brought into the light they will begin to exhibit growth, and young shoots thus produced make the best cuttings. The roots may be replanted in the open air in spring.—A. D.

Morello Cherries Not Ripening.—*Workshop.*—The falling of Morello and other Cherries is not an uncommon occurrence. The roots of the trees are probably too deep, and have perhaps penetrated an ungenial subsoil. The remedy would be to try and lift the feeding extremities, working in some light loamy soil. When the roots descend too deep they are not so active as when nearer the surface, and when increased stress is laid upon them at the stoning period failure occurs. A mulching of manure after the fruit is set would be beneficial.—E. H.

Wintering Tuberous Begonias.—*Alpha.*—Pots containing tubers of these may be plunged in ashes in any place provided they are safe from frost. The tubers should never be allowed to be dust dry. Lay the pots on their sides under the staging of a greenhouse. In the spring put them on the staging near the glass, and with a genial temperature they soon show signs of life; then turn them out of their pots; shake the soil from the roots, and repot them into pots a trifle larger than the tubers, adding fresh soil. Afterwards they may either be grown on in pots or planted out.—H.

Treatment of Tea Roses in Pots.—A. B.—Prune them now, and place them in a cold frame or greenhouse, or they may be left in the open air until about the middle of January if well protected with bracken or litter of some kind. If the plants have the appearance of being pot-bound, shift them into the next sized pots, using a compost of fibrous loam, a little leaf-mould, and thoroughly decomposed manure. If the loam is of a heavy character make a free use of leaf-mould. Tea Roses do not like a close tenacious soil.—C.

Names of Plants.—*Mona.*—1, *Aspidium angulare*; 2, *Asplenium Filix-femina* Morelet; 3, *Aspidium aculeatum grandidens*.—*G. B. L.*—*Bupleurum fruticosum*.—*H. G.*—1, *Aspidium aculeatum*; 2, *Polypodium vulgare*; 3, *Aspidium angulare proliferum*.—*N. B.*—The *Asters* were too much withered to name.—*R. P.*—1, *Chorizanthe varians*; 3, *C. ilicifolium*.—*J. E.*—*Passiflora* (next week).—*G. W.*—*Erigeron glabellum*.—*S. T.*—1, *Rivina laevis*; 2, *R. humilis*.—*Enquirer.*—1, *Cotoneaster frigidus*; 2, *C. affinis*; 3, apparently *C. thymifolia*.—*G. W. S.*—1, *Erica gracilis*; 2, *E. cerinthoides*; 3, *E. mammosa*; 4, *E. hymnalis*; others next week.—*Reader.*—1, *Taxodium sempervirens*; 2, one of the numerous forms of *Cupressus Lawsoniana*; 3, *Picea nobilis*; 5, *Abies Smithii*; the others we cannot name from such scraps.—*R. D. T.*—*Adiantum decorum*; *D. M.*—Fruits of *Euonymus europaeus*.

Names of Fruits.—*Prunus.*—The Plums you send are undoubtedly *Coe's Golden Drop*, but the flavour is, as you observe, somewhat different than usual.—*Subscriber.*—Apples—1, *Keswick Codlin*; 2, *Cellini*; 3, *Northern Greening*.

Questions.

Lapageria Shoots Burying Themselves.—We have several large plants of *Lapageria*, and on examining them I find that some of the strongest shoots under the soil are travelling in a slanting direction towards the drainage, instead of coming to the surface. When the shoots in question first started, they were only 2 in. from the surface, and yet they go some 4 ft. or more, and grow fast into crevices in the stonework. There was nothing to prevent their coming to the surface. Can anyone say what is the reason of this, or suggest a remedy? Many shoots are eaten off at a depth of 6 in. from the surface by either slugs or woodlice. Do woodlice eat the young shoots of the *Lapageria*?—T. C. A.

Blue-flowered Greenhouse Plants.—What are the best really blue flowers for cultivation in a small warm greenhouse? There seems to be some scarcity of flowers of this colour especially during the summer and autumn months.—A. K., *Eastcott*.

Anacharis Alsinistrum. Having emptied and cleared a pond of this horrible weed, I am anxious to know whether exposure to the air for a month or so will completely kill any rooted portions that remain high and dry among the *Phragmites* and Rushes, or must these also be removed? Can any of your readers help me?—A. K., *Eastcott*.

Setting Boilers.—I am about to fix a 54 in. rivetted saddle boiler to heat four houses. Could you kindly say what depth it should be below the lowest pipes to ensure good circulation? I am rather cramped for depth of stoke-hole.—W. S.

MARSHALL WILDER.

MARSHALL WILDER has, for a long series of years, done such good work in America in connection with pomology that we feel sure his portrait and a short account of his life (condensed from the *Rural New Yorker*) must be welcomed by many in this country. He was born September 22, 1798, at Rindge, N.H., and at the age of twenty-one his father took him into partnership, which continued until 1825, when, in search of a wider field, he moved to Boston. The firm of Wilder & Payson was at once formed, and under various modifications of firm names, Mr. Wilder has continued a merchant of Boston to the present time, honoured and successful. But trade and the acquisition of wealth were not the all-engrossing pursuits of his mind. After devoting a suitable time to business, he gave his leisure to horticulture and agriculture, and especially to pomology; he has indeed filled several large volumes with descriptions and delineations of fruits proved under his own inspection.



Marshall Pinckney Wilder.

Floriculture was also one of Mr. Wilder's favourite pursuits. His *Camellia* house is supposed to have contained the best collection in America. Two seedlings, *Camellia Wilderi* and *Mrs. Abby Wilder*, were named in compliment to him by the Massachusetts Horticultural Society. But it was in pomology that he was most successful and most widely known. The Pears in his orchard, consisting of 2500 trees and 800 varieties, became as noted as the *Camellias* in his conservatory.

In 1848, as president of the Massachusetts Horticultural Society, he headed a circular calling a convention of fruit growers throughout America. This resulted in the organisation of the American Pomological Society, of which he is at present the president. From the stand-point of the Massachusetts Horticultural Society he originated the American Pomological Society; then the Norfolk Agricultural Society; then the State Board of Agriculture, and the Massachusetts Agricultural College, and finally the United States Agricultural Society. His military title is the result of his interest in various militia organisations. After the death of his first wife in 1831, he sought retirement in Dorchester, where he has re-married twice, and now lives surrounded by all the influences that contribute to the charm of existence. When we look at his success in the arts of cultivation, and then turn from these more humble objects and consider those other memorials, especially the noble institutions which owe their origin and success, in a great degree, to his influence and efforts, it cannot be doubted that in the roll of the benefactors of mankind, one of the most prominent names in this age and country will be that of Marshall Pinckney Wilder.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

LEAFLETS.

MUCH as we may grumble about our winters, from the point of view of trees and landscape beauty they are delightful. The wider views which we get when the leaves fall, the glorious contrast of leafless and evergreen trees, the gardens of Lichens on the stems, clouds of delicate spray of trees glowing into colour in the distance—these, and much more we should miss without our winters.

This fact was never brought so forcibly to my mind as last Saturday in Goodwood Park, when the glorious sun shone out and lit up hoary trunks of Oak, great spreading Cedars, and distant slopes of forest spray, with a refulgent beauty that was almost startling. The delightful contrasts between British Oak in fine groups, and evergreen Oak in groups equally fine, with Cedars of Lebanon, changed completely the character of the landscape from what is usually met with in English parks.

Cedars of Lebanon we all see and admire in pleasure gardens, but this is the first place I have ever seen where the majesty and noble variety of this tree are truly shown, scattered in groves and groups and as single specimens over a large and varied landscape. Assuredly we do not want to be told of its beauty and value for our gardens, and of its great superiority to the majority of the "fashionable" Conifers now being planted everywhere, but we do want to get some idea of its noble uses in park, forest, and hill scenery.

No pleasure-ground preparation of deep, well-selected, and gathered soil for these giants of the hills, which here compete with the sturdiness of the finest British Oak! Scant soil over chalk, and perfect exposure to the hill and sea winds is their fare. One tree is well up the hillside, perfectly exposed on every side, and beyond a picturesque leaning of the plumes in one direction shows quite as little sign of suffering as a group of the common Yew below it. Somewhat larger and more stately in the lower level part of the park, the great Cedars contrast superbly with the rock-like strength of trunk and delicate filigree branching of the naked Oak and Chestnut.

Some wise planter must have been here years ago to give us all this grouping and stateliness of tree life without torturing the sward with dots, or obscuring the delightful view of sea and hill, Oak, and Chestnut, and Lime, fine in stature and in form, being all grouped like herds of great creatures that like to keep together: and then away on the hills grove after grove of Fir and Beech, with here and there the dark plumes of the Yew, or the pale green of Box bushes grouping themselves prettily outside the masses; fields of snow between, and standing clear out of the nearest down those round tufts of trees so characteristic of the country, and beyond at last fleecy downs, pale in the winter sky.

It is pleasant to turn from these cooler portions, and get down on the sunny side of the groves of large evergreen Oaks, which stand shoulder to shoulder with the common British Oak, as if to prove that while not shrinking a leaf before the bitter blast, they can attain almost as great stature as their summer-leaving brothers now naked. Close in groups

with polished leaves, these afford a fine effect in the landscape; few indeed, are the trees so worthy of attention as this Oak, and nowhere is its merits better shown as in Goodwood park.

And not merely as a park or garden tree is this Evergreen Oak of Southern Europe valuable here. Nothing would give such perfect shelter to an orchard on the hills; a village or a farm might well be protected in part with so fine an evergreen tree, which keeps the wind off better than a wall, instead of with the trees that stand naked and helpless before the gale.

Among the more remarkable trees at Goodwood are two specimens of the Cork Oak, which are singularly interesting, especially when the morning sun gives to the bossed bark a beautiful golden-brown hue. One tree is round and massive in form, but the other is broken off at one side and "weeps" on the other, making it a most picturesque object. The bark of these trees is so beautiful that no opportunity should be lost to grow the Cork Oak in districts where it does well, and there are many such.

Among all this stately life, there are one or two dead trees barkless and blanched like an old Larch high on the Alps. It is, however, quite right to keep them where they are, as they decidedly add an important element to the picture. Leaving one or two dead trees would often produce a desirable effect. Such trees may be treated in two ways. When stricken in all their strength and beauty, they are perhaps most effective when allowed to stand white, and free from climbers or Ivy. If mere stumps or not otherwise remarkable, a free-growing hardy climber like the white Clematis will soon throw a graceful veil over them.

Is it not too commonly assumed that undulation of the ground is necessary for the production of beautiful effects in landscape gardening? I think it is, and that much of the pottering and shovelling about of the earth for the sake of getting a little feeble diversity is worse than wasted. Some of the finest effects obtained at Goodwood are from trees planted on level or nearly level ground, and no other disposition of the ground could improve the scene. In another part of the park steep slopes and soft little valleys, characteristic of the chalk, produce a fine bold diversity of surface. Notwithstanding, however, some singularly happy effects, beautiful groups and wide-spreading of wood, and valley, and lawn, there is not, on the whole, any effect so stately beautiful as that on the level park.

The eccentric owner of Welbeck is dead—a man not without merit as a horticulturist, if we judge by what was done at Welbeck during his life-time. He was the owner of great estates in England and Scotland, but in his later years he became somewhat of a recluse. His father, having become impressed with the idea that there was to be a scarcity of Oak, planted a tree wherever he could, until his park at Welbeck Abbey, in Nottinghamshire, was almost a plantation when he died in 1854. His son and successor, on taking up his residence at Welbeck, proceeded to improve the estate, cutting down the superfluous timber, and laying out the park.

He constructed then one of the most perfect series of kitchen gardens in the kingdom, with one of fruit, and forcing, and orchard houses, and spent much of his time and a great part of his income in putting his seat in the most perfect order for receiving and entertaining guests in ducal style; but, owing mainly to the state of his health, he kept no company and gave no entertainments on any occasion.

A local contemporary, in speaking of his Grace's endeavour to convert a stream through his park into a lake 6 miles long, says: "Hundreds of labourers were employed in this and other work on the estate in hand at good wages, but on one condition—no one was to speak to him or salute him. The man who touched his hat was at once discharged. The village doctor and the parson had the same orders. The tenants were informed of the duke's wishes, and if they met him they were to pass him 'as they would a tree.' Yet he was constantly about his domain, planning and superintending improvements."

Amongst his other eccentricities was that of creating a second and very important kitchen and fruit garden, and employing a separate gardener for it. This was done in consequence of some slight misunderstanding between him and the late Mr. Tillery, who had long been the gardener there, and who made a superb series of gardens at Welbeck only a few years ago.

When poor Tillery was showing any one round the place and when, on turning a corner, they saw his Grace in the distance, they retreated as antelopes might on beholding a lion. He, however, had a not unkindly way of settling differences, as witness the formation of the fine new garden, alluded to above, so as to avoid contact with the old gardener, although the latter had been at Welbeck for some forty-five years.

Many are familiar with his plan of sinking roadways in very costly tunnels underground, lighted by gas, and ventilated by glass apertures. He also built some years ago many cottages on his estate at Welbeck, but to this day they are quite bare, not even so much as a Rose branch being allowed to be fastened to their walls. He removed, too, the homes of his men so far from the place that they had to go to and from work on donkeys, a good herd of which were duly put up in the daytime in fine stables, or allowed to graze about the Abbey.

The late Duke cut down all the Larch trees on his estate at Welbeck, thinking them useless through disease, and he tried to induce his neighbours to do the same. He came to Lord Manvers, and they resolved to cut down some Larches in order to examine their condition. Twelve were cut down, and they proved to be sound. The Duke afterwards suggested that the forester, Mr. Jamieson, who did not agree with his opinions, knew that he was cutting down only sound specimens. Mr. Jamieson heard of this, and suggested that the Duke should select his own trees; he did so, and they were also found to be sound, a circumstance which probably saved the Larches at Thoresby, which are now valuable timber, one of them being, perhaps, the largest in the country.

Formal Roseries are not very pretty as a rule, and they are frequently set down so that their presence is a blot. At Thoresby a Rosery has been formed on a small island at the head of the lake, cut off from all other gardening, and the effect is excellent. It is a quiet nook in which there is a summer house. Such arrangements are better than those commonly in use.

Mr. Gumbleton tells me that a gentleman on the Continent has secured the double form of the creeping Forget-me-not (*Omphalodes verna*). I call it the double Forget-me-not, because where it does well it throws out little runners. It loves upland and moist districts, and woody or half shady places and moist soil. It is a gem for the wild garden. This will be pleasant news to lovers of hardy plants. This plant is such a favourite that even those who do not care about many double flowers will be curious to see how its blossoms

look in the double state, but I fear they cannot be so pretty as those that are single. It will be useless to apply for this for some time yet, as it is not yet increased sufficiently.

I hear that M. Frœbel, of Zurich, has got hold of a pink St. John's-Wort (*Hypericum virginicum*), which will be of great interest to all lovers of hardy plants. These long-neglected plants are now being looked after in some good collections, and we shall no doubt some day have plenty of their beautiful polished golden buds about us.

Mr. Gumbleton is most enthusiastic in his description of the extraordinary beauty of the Begonias now being raised abroad, many of which he saw during his autumnal tour on the Continent. M. Lequin, of Clamart, near Paris, has a splendid series of double kinds.

I received poor A. Revière's book on the Bamboos, which had to be finished by his son—a book which is a monument of horticultural and botanic knowledge. We hear a good deal of the uses of Bamboos in other countries, and know a little of their beauty in this, in our glasshouses and in favoured gardens here and there. But the French seem to see a source of profit in this plant when grown on their southern shores and in other parts of the Mediterranean. There a great many species thrive. All that is known concerning them is mentioned in this excellent book, which also illustrates their mode of propagation and culture, which is of peculiar interest to any body inhabiting a country a little warmer and sunnier than our own. With us, however, in genial spots several kinds are known to be hardy enough for culture in the open air, and indeed to thrive there well. Probably more may be found, but in any case what we have are very valuable for our gardens.

One wishes the same could be said of some of the Eucalypti, which are now so often talked about. Whatever may be the reason of the craze for this Eucalyptus, it is the most absurd and widespread that has taken place in my time. Plants that have been thoroughly tried long ago, and which are known to be utterly useless for our climate, are planted round London and in other most unlikely places every day. To see them among the bedding plants nobody would mind, but it is odd to see intelligent beings planting them out among trees; and of course they occupy places and cause money to be spent which might be devoted to things which will do in our climate, and perhaps do for us what the Eucalyptus does for other climates, if that were necessary.

So far as I know, no better man could have obtained the Epping appointment than Mr. McKenzie, who certainly does know something about the work. The appointment is a most important one, and novel in its aim, that is, the preservation and conservation of the beauty of the Forest. It is not a question of gardening in any ordinary sense, and yet such a place might be made a noble garden by the mere development of its natural beauty.

I hear from a correspondent that the committee object much to any introduction of foreign trees, wanting a general English forest; yet, strange to say, the only bit of tree planting they have yet done is apparently to plant foreign trees. They have planted a straight avenue of Poplars—foreign kinds, of course. Planting a straight avenue of Poplars in a forest does not seem the best way to do that which by Act of Parliament they are bound to do—preserve its "natural aspect."

I have often thought that it would be a very excellent thing in a large forest like Epping to collect and plant the varieties of British trees, as, for example, every known kind of Oak and Hawthorn, as specimens, in groups, or groves, or masses, so that we might see their effect not merely as it might be in a botanic garden. What there would seem a mere variation, would, perhaps, when the trees were fully developed, have a most important value from an artist's or a planter's point of view.

I amused myself on one of those recent cold days by roasting some Sweet Potatoes in hot ashes—roots that I bought from Mr. Garcia in Covent Garden. I mean the Sweet Potato of North America, which is so good when roasted or baked. For the first time I found that these Covent Garden specimens turned out very well. The Sweet Potato is an excellent vegetable, and I should advise our American friends to send us quantities of well-ripened roots, and also tell us how to cook them. I noticed in America that, just as with our common Potato at home, there are wet and dry tubers, mainly owing to differences of soil. I understand those grown in the sandy soils of the south are much better in America than those raised elsewhere. It seemed to be a greater favourite than the common Potato, which was there called the Irish Potato to distinguish it from this one. I believe it to be more nutritious than the common Potato, and when good it turns out something between a sweetmeat and a vegetable. To import a vegetable which our climate prevents us growing, and which in consequence is a novelty to most people, is very desirable. I do not know if their price is high in America, but it would be a great boon if they could be sent here in such quantities as would allow of their being used as food. At present they are merely Covent Garden curiosities.

I do not intend at present to have any vegetables at dinner when dining in town, so wretched is the supply seen in Covent Garden during the frost. They are not merely frozen but quite decomposed! The Lettuces and Endive are only fit to be spread upon the land, and the same is true of the spotted and half-rotten Tomatoes which are now offered for sale and freely eaten in London restaurants and clubs. I fear there are some causes of death which the Registrar-General does not include in his statements.

A gentleman points out to me that it would be an advantage if the rules concerning the admission of horticulturists and others to the gardens at Kew during the hours when the gates are closed to the general public could be printed and posted outside the gate—not only at Kew Green Gate, but at the Cumberland Gate. This is so desirable that it probably has only to be mentioned to the authorities to secure their attention to it. At present persons not knowing the place may lose time or be disappointed, from not knowing what to do, as the admission is by a side gate.

Mr. Croucher tells me that trapped insects frequently injure the plants which they are supposed to "nourish." Here is his statement:—

"Anyone who, like myself, has grown insectivorous plants continuously for some twenty years, knows that they are more injured than benefited by the insects entrapped, and that the idea that they produce more seed when fed with insects than when deprived of them is a fallacy. Some assume that it is granted that all plants have the power of absorbing nutritious substances through their leaf tissues. This is also a fallacy, though it has been accepted as proved by those who only study Nature to uphold theories. How is it that plants covered with glasses to keep off flies do so well? The great cause of much of the disputation on these subjects is that naturalists

look at only one part of Nature, instead of studying her as one grand whole, seeing in the lower developments steps towards those that are higher."

The public seem to have great confidence in the gardener's skill. A gentleman was lately observed conducting a friend through a large collection of succulent plants, and telling him naively that the various forms were the result of the hybridiser's skill: "They are made to grow into any desired shape, from that of a plum pudding to a candelabrum or a tall fluted stem according to the will of the cultivator."

All those who take an interest in our markets must have noticed of late years the immense importations from abroad, to a large extent made up of hardy vegetables and fruits which could be grown quite as well in England. The question of the land, which is now the question of the day, has obviously a direct and important relation to horticulture and the supply of our markets with vegetables and fruits. There cannot be much doubt to any observing person that active and healthy competition on our side in all that concerns land produce is much impeded by laws and customs relating to the land. Now, however, when landlords themselves are found asking for reforms in these matters, there is little doubt reforms are needed. The essential thing is to carry them out wisely and effectively. One of the most sensible articles on the subject is that of Mr. Osborn Morgan in the *Fortnightly Review*, from which I quote a few paragraphs:—

The land laws of England are wrapt in a fog so dense as to make the subject intensely unattractive to the general public. Unlike our commercial code they have their origin in remote and semi-barbarous times, and are overlaid by a mass of mediæval rubbish, a legacy from that wonderful Norman race, who, to the true instincts of feudalism, united a perfect genius for legal quirks and quibbles, and who, having made themselves masters of the land of England, proceeded to write their laws upon it in characters which centuries of change and progress have not effaced.

The first stumbling-block, and, strange to say, that which might most easily be removed, lies in what is called by lawyers the identification of the parcels. It is hardly credible that, owing to the loose and dilatory way in which the recent Ordnance surveys have been carried out, there are still many parts of England, such as the populous and important county of Worcester, which cannot be said to have been officially surveyed at all; and thus, for the sake of a few thousand pounds, the landowners of England are deprived of a benefit which those of nearly every other civilised country enjoy.

To complete the all-important work of surveying every county in England, so as to make each house and field capable of immediate and unquestionable identification—to clothe instruments relating to land in the simple language of everyday life, instead of disguising them in that of Henry VIII. and Elizabeth—to pay solicitors upon a principle which would no longer put a premium upon mere verbiage—to vest the freeholds, like the leaseholds, of a deceased person in some ascertained person, instead of leaving them at haphazard to devolve upon a child in the nursery, a lunatic in an asylum, or a gold digger in Australia—to substitute simple charges upon land, defeasible in case of repayment, for the unwieldy machinery of mortgages and reconveyances—to reduce still further the time fixed for the commencement of titles—to get rid of "constructive notice" and the abomination known as the Middlesex Register—and to establish in convenient centres really well-arranged registers of all dealings with land, furnished with indexes enabling a person of ordinary intelli-

gence to pick out all the charges affecting the title in a few minutes, with proper provisions for utilising the result of previous searches, so as to obviate the necessity of repeating the same process upon every fresh transaction; all these are suggestions so homely and obvious, that they are hardly likely to find favour with a generation of law reformers who have expended as much energy upon impracticable schemes of land registration as any mediæval alchemist ever bestowed on the discovery of the philosopher's stone.

It is an axiom which no practical agriculturist will controvert, that the returns which can be obtained from any given quantity of land are in exact proportion to the amount of capital expended upon it. But as it is obviously for the interest of the community that every acre should be made as productive as possible, it follows that no system can be really beneficial which hands over a large proportion of the land to the tender mercies of a limited owner more or less crippled or impoverished, or still worse, of some usurer or loan society, whose interest it is to spend as little and get as much as possible during their precarious period of tenure.

The question has its social as well as its economical side, and of late years that large and increasing body of Englishmen who believe that the prosperity of a nation is bound up with "the greatest happiness of the greatest number," and who for years have been contrasting the lot of the thrifty and self-reliant peasant of Switzerland or Belgium, and that of the Dorsetshire labourer with no solace but the beer-shop, and no refuge in old age but the parish workhouse, have been steadily coming round to the conviction that the real hope of England lies in the growth of small proprietorships. Those who, like myself, have seen the difference which the possession of a freehold cottage and half an acre of garden makes in the habits and character—nay, in the very expression and bearing, of a Denbighshire collier, or a Merionethshire quarryman, will need no additional arguments to convince them of this great social and political truth.

The difficulties of attacking the growth of so many centuries are indeed great—to those who know the mass of prejudice, and the *vis inertiae* which the most urgent and moderate of land law reforms have hitherto encountered, they may seem insuperable. But we know that in England public opinion, when it is once set going, moves with a force and velocity which no one could have predicted, and of the direction in which it is at present moving there can be no doubt. Let us hope that the work, when it has to be done, may fall into the hands of men armed with that knowledge which a study of the subject in its practical bearings can alone give, and at the same time untrammelled by the professional and other prejudices which such a study too often engenders.

JUSTICIA.

Storing Ice.—The best method of storing ice has frequently been discussed, and one would imagine, from the minute instructions which one reads in gardening works on this subject, that it is a very complicated affair; but my own experience leads me to think that many of the supposed aids to its preservation are so many aids to its rapid decay. I have tried several plans, but the best I ever found was to dispense with packing entirely, and rely on getting as large a body of solid ice as possible into the house, thereby expelling the warmer air which all kinds of packing materials hold, in addition to their bulk reducing the space available for the ice. Last winter we filled a large house, built in an oval or egg shape, and that was said to be a bad structure for keeping ice. After carting the ice to the doors in the ordinary way, it was shot down and pounded fine with heavy wooden mallets; then it was wheeled into the house and again beaten down with heavy wooden beaters; and this was done until the house was quite full. No packing of any sort or kind was used in the house, but as soon as the inner door was shut the passage was

filled with straw bundles. After using a large quantity more or less during the whole season, we found, when filling it again lately, a quantity still left at the bottom. I am well aware that ice may be kept by various methods; but any one having an ordinary ice-house will find that they may keep it equally well without packing as with it; at least that is the conclusion at which I have arrived after trying both ways. For the future, I will rely on a good body of ice, put together in as solid a manner as heavy rammers can pack it.—J. G. L.

THE FLOWER GARDEN.

HERBACEOUS PHLOXES.

AMONGST plants which will grow and flower well and afford the utmost satisfaction in the worst of seasons, or during a long continuance of ungenial weather, none surpass herbaceous Phloxes. I do not think this fact can be generally known, or, if it is known, it is certainly not taken advantage of as it ought to be, because it is no exaggeration to say that Phloxes are thoroughly neglected in the majority of gardens. Of course there may be a few of them found growing in some out-of-the-way corner; but, for all that, they are still neglected, and ever will be until they are recognised as important plants for all kinds of summer and late autumn floral decoration. That they will one day be this is more than likely. Further than this, the many new varieties now gradually creeping into cultivation produce flowers which, for size, colour, and effect, would astonish those only acquainted with the old form of Phloxes. Although we have heard less about it recently, it is generally admitted that the old kinds of *Pelargonium*s have been vastly improved on lately; but in this respect they have not outstripped the Phlox, and little idea can be formed by those only acquainted with the old varieties of the splendid colours and accommodating habits of the recently-introduced Phloxes. During August, September, October, and November, our Phloxes have been objects of general admiration, and nearly all who have seen them have gone away with the intention of introducing them into their gardens more extensively than hitherto. In doing this no one will be wrong, as no plants are more easily cultivated. None will remain so long in bloom, even in a bad season, and few are more showy. We have had flower spikes lately from 20 in. to 2 ft. in length, about as much as this in circumference, and sweetly-scented. Of course, such spikes are much too large to cut whole for any kind of cut-flower decoration, but the small side spikes can be cut off and thinned out without impairing the beauty of the spike, and these small bits do well for mixing with other cut flowers.

Phloxes are propagated either by cuttings or by division of the roots. The latter plan is the most simple and effectual. At the present time, or as soon as they are out of bloom, they should be cut down close to the ground, and after that the roots may be lifted and divided at any time during the winter. We have divided and planted them now, and we have done the same in the month of March, and both batches did equally well. When lifted now and replanted, the crowns should be covered well over with litter for the winter, but established plants do not want so much as this attention. The soil in which they delight is of a deep rich character, and before planting their quarters should be well dug and manured. When this is done before planting, no more will be wanted for some years, and then the best plan is to lift the whole of the roots, manure the ground thoroughly, and replant. Many surface-dress them, and cut the roots to get the manure closer to them, every winter; but when the ground has been properly prepared at first, this kind of cultivation is unnecessary. When new plants are bought in from a nursery, which is the best way of introducing new kinds or adding to a collection, they are generally received in small pots. These should be got in, and planted early in spring, when they will produce a good display of bloom in autumn. As to the right situations in which to plant Phloxes, they are never out of place anywhere. A mass of one colour or another may be had in any bed in the flower garden, or all kinds may be mixed together in herbaceous borders, shrubberies, or by woodland walks. Space need not be taken up enumerating names of the best varieties, as selections for all purposes may always be made from trade catalogues.

CAMERIAN.

Permanent Bulb Beds.—As almost all kinds of bulbs may yet be planted, I would advise any one fond of that class of plants to try the following method of disposing of any surplus bulbs which may be left after the show beds or geometric gardens have been planted. Select positions for them on the lawn or pleasure grounds where branches of Lime or other deciduous trees cause the Grass to grow thinly and weakly, and where the mowing machine is not a regular visitor. After deciding on where the clumps or patches of bulbs would look best, break up a few spade-

fuls of earth, and if poor add a little fresh soil, and plant bulbs of the earliest flowering kinds, such as Snowdrops, Crocuses, Aconites, Daffodils, Jonquils, and Bluebells. They will come up in spring and will look all the better for being associated with the young foliage of the Buttercups and Daisies that are seen to mingle with them, and by making a selection of sorts that bloom in succession a pretty effect may be obtained in this way for many weeks. After the foliage dies down the scythe may be run over the surface, which may be otherwise treated as the rest of the lawn. We have a great variety of bulbs under trees, and lovely they look when in bloom. Some are planted so as to form designs, but I prefer them in irregular groups or masses that are allowed to extend at will, as, except for the purpose of increasing the stock, they are best left undisturbed. The Daffodil does well planted on open spaces in the turf, but in such positions as those just named a very large variety of bulbs may be grown most successfully.—J. G., *Linton Park*.

DRACÆNA AUSTRALIS IN WILTS.

THE accompanying engraving represents a good specimen of *Dracæna australis* in bloom in the flower garden of Mr. N. F. Barton, Corsley House, Warminster. This plant has been growing in the open garden upwards of twenty years: it measured, when in blossom, about 9 ft. in height; the bloom-spike was 4 ft. 6 in. in length, and



Dracæna australis in Wilts.

5 ft. through at the base or at the broadest part; the fragrance emitted from the flower perfumed the air for some distance around. It has flowered frequently, and on one occasion ripened seed, from which I have a fine vigorous seedling planted out in the nursery. Mr. Barton's garden faces the south, and is sheltered on the north-east side by a high wall, near which the *Dracæna* is growing; the soil is light, with a dry porous subsoil. G. B.

Hardiness of *Fuchsia procumbens* (p. 465).—Mine stood out all last winter, without any protection, under a wall, and raised a few inches above the walk. A friendly stone, a few inches high, may have constituted a slight shelter. It suffered severely, and was cut back to the crown; but, when warm weather set in, it threw out its long trailing shoots as well as ever. It may not be out of place to remark here that, in cases of all plants of doubtful hardiness, I make a point of planting them out in spring, in order that they may have a whole season before them, and so get well established before winter. I would not think of planting *Fuchsia procumbens* out now, but would do so without hesitation next April or May.—EDWIN JACKSON, *Llandulgy*.

SPRING GARDENING.

A CORRESPONDENT in the south of Ireland has sent us the following account of the way in which his spring garden, consisting of sixty beds, is stocked with plants to bloom next spring:—

- 1.—An oval contains sixty mixed single early Tulips, and is edged with a border of *Triteleia conspicua*.
- 2.—A scroll is furnished with thirty-six double early Tulips of the Duke of York variety.
- 3.—An oval is filled with twenty-two varieties of choice named hybrid Daffodils, edged with Golden Point Lace Pyrethrum.
- 4.—A scroll planted with *Iberis superba*.
- 5.—An oval containing a carpet of *Myosotis dissitiflora* with fifty early double Tulips of the yellow rose kind edged with *Triteleia conspicua*.
- 6.—A square filled with twenty-five *Tulipa Greigi*, edged with a thick border of *Narcissus odorus plenus*.
- 7.—An oval with ninety-six early single Tulips, consisting of six varieties with gold and silver variegated foliage.
- 8.—A crescent with eighty-two mixed single early Tulips.
- 9.—A diamond with *Fritillaria imperialis* (Crown Imperial) consisting of seven varieties, edged with fourteen varieties of Leeds' Hybrid Narcissi.
- 10.—An oval with fifty English Irises, consisting of twenty-five varieties, carpeted with nine varieties of Nelson's Hybrid trailing Phloxes, and edged with *Narcissus odorus plenus*.
- 11.—A smoothing iron with thirty-one named single Hyacinths, edged with *Narcissus minor*.
- 12.—A crescent with single French large-flowered Anemones.
- 13.—A crescent with 300 offsets of single early Tulips, and fifty-one roots of named varieties in three kinds intermixed.
- 14.—A smoothing iron with thirty-six early blue Roman Hyacinths.
- 15.—An oval with seventy-five named bedding Pansies in three varieties, edged with a thick border of *Anemone nemorosa alba plena*.
- 16.—A circle with forty-eight double Rex Rubrorum, and the same number of *La Candeur* round them, and edged with *Narcissus minor*.
- 17.—An oval with Dean's Hybrid Single Primroses, edged with *Narcissus odorus plenus* or the Crown Jonquil.
- 18.—A star with fifty double Hyacinths edged with *Narcissus Eystettensis plenus* or Queen Anne's Jonquil.
- 19.—A smoothing iron with a carpet of Nelson's Hybrid Phloxes in nine varieties, twelve *Lilium colchicum*, and two *Lilium Batemanni*, edged with Queen Anne's Jonquil.
- 20.—An oval with Lothair blue bedding Pansy, and a centre of Captain Hayter yellow bedding Pansy edged with *Colchicum autumnale flore-pleno*.
- 21.—A circle with 400 Meladores, edged with *Colchicum autumnale flore-pleno albo*.
- 22.—A crescent with eighty mixed single early Tulips.
- 23.—An oval with yellow bedding Pansy The Shah, with white bedding Pansy Mrs. Turner in the centre.
- 24.—A raised Mushroom with Nelson's Hybrid Phloxes in nine varieties.
- 25.—An oval planted the same as No. 5 bed, but edged with *Narcissus minor*.
- 26.—An oval with Waverley blue bedding Pansy.
- 27.—A square with twenty *Tulipa Greigi*, edged with *Triteleia conspicua* and lilacina.
- 28.—A star with 200 scarlet Turban Ranunculuses in centre with 300 white Hercules Turban Ranunculuses round them, edged with *Narcissus minor*.
- 29.—An oval with choice double Pyrethrums in eighteen varieties, carpeted with eighty double Van Thol Tulips, edged with Mammoth yellow Crocus.
- 30.—A scroll with thirty-six double Tulips of the Mariage de Ma Fille variety, with double white Primroses.
- 31.—An oval with bedding Pansies Golden Bedder, Imperial Blue, Pilgrig Park White in rings, with dark *Viola Acme* in the centre of the bed.
- 32.—A circle with eighty-four single Tulip *Couleur cardinal*, edged with *Anemone nemorosa alba-plena*.
- 33.—An oval with forty-eight English Irises in thirteen varieties, edged with *Triteleia conspicua*.
- 34.—A scroll with thirty-six single Tulips of the Kaizer Kroon kind.
- 35.—An oval with blue bedding Pansy Waverley.
- 36.—Mushroom with trailing Phloxes Nelsoni, setacea, and *atro-purpurea*.
- 37.—An oval with mixed bedding Pansies in six varieties, edged with named Crocuses, also in six varieties.

38.—A scroll with *Iberis superba*, edged with *Pyrethrum Golden Point Lace*.

The following twenty-two small beds—all circular save one which is square—are filled as follows:—

1.—Six Tulips of the Bruid Von Haarlem variety, edged with *Crocus byzantinus*.

2.—Six Tulips Yellow Rose, edged with *Campanula garganica*.

3.—Six Tulips Vuurberg, edged in the same way.

4.—Six Tulips Roi Pepin, six *Allium Douglasi*, six *Erythronium grandiflorum purpureum*, edged with *Crocus Ne Plus Ultra*.

5.—Six Tulips Roi Pepin, edged with variegated *Myosotis elegantissima*.

6.—Six Tulips Golden Standard, edged with *Crocus Madame Mina*.

7.—Six Tulips Yellow Rose, edged with double Daisy Little Dandy.

8.—Six Tulips Proserpine, edged with *Crocus Miss Nightingale* and *Aubrietia variegata*.

9.—Six Tulips Roi Pepin, six *Seubertia laxa maxima*, six *S. atropurpurea*, twelve *S. laxa*, three *Milla longipes*, edged with *Arabis lucida variegata*.

10.—Six Tulips Roi Pepin, edged with a thick border of *Silene alpestris*.

11.—Six Tulips Vermilion Brilliant, edged with autumn-blooming *Crocuses*.

12.—Six Tulips Bruid Von Haarlem, edged with *Campanula turbinata*.

13.—Six Tulips in three varieties, edged with *Silene alpestris*.

14.—Six Tulips Proserpine, edged with *Crocus Sir Walter Scott*.

15.—Six Tulips Proserpine, edged with *Camassia esculenta* and *Fraseri*.

16.—Six Tulips Silver Standard with *Albion Crocus* round, edged with *Aubrietia*.

17.—Six Tulips Vuurberg, edged with *Crocus lilacinus*.

18.—Six Tulips Elenore, edged with *Campanula turbinata*.

19.—Six Tulips Golden Standard, edged with *Hesperocordum lilacinum*.

20.—Fourteen Tulips Silver Standard round seven *Hyacinthus candicans*, with *Eremurus robustus* in centre, edged with *Aubrietia variegata*.

21.—Two *Fritillaria pallidiflora*, three *Fritillaria recurva* in centre, two new species of *Allium*, edged with *Silene alpestris*.

22.—*Fritillaria Thomsoniana* in centre, *Muscari paradoxum* round it, *Narcissus Macleayi* and *serrulata*, edged with *Lilium Thunbergianum alutaceum*.

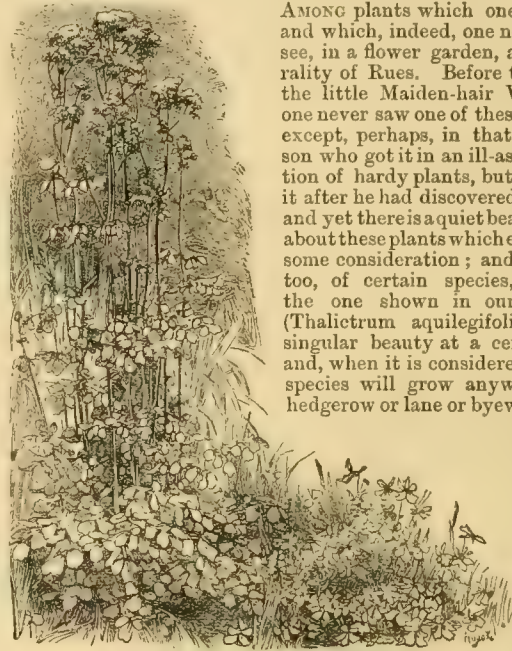
The above will serve to show what a really well-stocked spring garden ought to be.

The Great Lizard Orchis.—Referring to two recent notes on this subject (pp. 445 and 462), let us hope that "students of British wild flowers" will not be too hasty in "adding one more to the few habitats" of this rare Orchis. Let the question by all means be decided next June by sending a flower to the Editor of THE GARDEN. I venture to predict that it will turn out to be *Habenaria bifolia*, which is found sparingly both on the Great and Little Orme, being less common there than in most other parts of North Wales. This plant was not mentioned in the strange medley of common and uncommon plants first given by "Botanist" as occurring on the Great Orme's Head. To believe that Orchis hircina is really found there is to suppose that the many experienced botanists who have searched the Orme's Heads at all seasons have been without eyes.—C. W. D.

Gypsophila paniculata.—In answer to Mr. Ewbank (p. 507), allow me to say that I am aware that many chalk plants will grow in common soil, and so will Watercress. What I wished to point out was that peat was unnecessary for a chalk or a limestone plant, and what I thought strange was that there should be any difficulty about the culture of a plant that I have discarded on account of its superabundant growth and its sprawling and monopolising propensities. I have no doubt that this plant may sometimes suffer from not being sufficiently elevated. Its profusion of stem and spray falling on itself may, on a dead level, perhaps injure it. The very aerial look of the plant bespeaks its adaptation for an elevated position; and I have no doubt the proper way to grow it would be to make a mound of a barrow-load or two of stones, fill up, and plant it in ordinary stony soil, and leave it alone to ramble at will. In such a situation I have no doubt that it would do better than on a level surface, though smothered or buried in peat. It is certainly not a plant for ordinary border culture, and tying up such a plant would be folly. As a finishing or feathering to bouquets it may be admissible, but I have never seen it used in any bouquets, though some of the choicest in the world are made in our neighbourhood. There is, however, a difference between a bouquet and a mop. The sprays of *Gypsophila*

paniculata are too open and diffuse for a neat nosegay, but it answers for vases and such like decorative work, and I always made use of it to feather up baskets of cut flowers at our country shows. The plant even dries and keeps better than some *Statice*s, and in masses it has a charming appearance in grates and urns in winter; and could Mr. Ewbank but see it thus used, his advice about putting it in the fire would have been unnecessary. Dried and blanched white this plant enters largely into importations of dried flowers.—THOMAS WILLIAMS, Ormskirk.

SHOWY MEADOW RUE IN THE WILD GARDEN.



Showy Meadow Rue in the Wild Garden.

AMONG plants which one never sees, and which, indeed, one never ought to see, in a flower garden, are the generality of *Rues*. Before the advent of the little Maiden-hair Window Rue one never saw one of these in a garden, except, perhaps, in that of some person who got it in an ill-assorted collection of hardy plants, but did not keep it after he had discovered his mistake; and yet there is a quiet beauty and grace about these plants which entitle them to some consideration; and the flowers, too, of certain species, particularly the one shown in our illustration (*Thalictrum aquilegifolium*), are of singular beauty at a certain season; and, when it is considered that all the species will grow anywhere—in any hedgerow or lane or byeway, or among

coarse Grass or in a copse, or under the shrubs, in places usually devoted to common weeds, there is no reason why numbers of them should not be rescued from the oblivion of the botanic garden and grown carefully near a garden or house; if so grown or placed they would look infinitely more graceful and beautiful than in the stiff arrangement of a botanic garden. Here, however, is a little illustration showing one kind, sketched at Longleat, and which, indeed, should have been inserted in the account of that place a fortnight ago.

Yucca gloriosa and recurva.—Amongst fine-foliaged hardy plants suitable for the embellishment of the outdoor garden at all seasons of the year, few can surpass the well-known *Yucca gloriosa*, with its stiff, rigid leaves tipped with sharp spines; and its graceful and appropriately named companion, *Y. recurva*. They commend themselves to one's notice in many ways; for instance, they are thoroughly hardy, easily propagated, and by no means fastidious as regards soil or position; and their strong, wiry roots, and equally tough foliage, render them proof against injury from rough winds. They produce suckers by means of which young plants are easily procured, and if required for vase decoration, or for central objects in beds of flowers or succulents, or in connection with hardy shrubs for winter effect, they should be grown in pots and plunged in the reserve garden when not required for use. Well-furnished specimens in 8 in. or 10 in. pots are extremely useful for indoor decoration, and especially for mixing with other plants in groups or floral decorations in winter where tender stove plants would be liable to receive injury. They are about the best of subjects for planting permanently in geometric gardens for furnishing circular beds, forming as they do such fresh looking objects at all seasons of the year, and being extremely ornamental when in flower. After flowering, however, they lose their symmetrical proportions, and branch into many crowned heads, a condition in which they look well as a background for borders devoted to fine-foliaged plants, giving as they do a kind of aspect to any arrangement of this sort not attainable by other plants that will withstand our winters. We have them in quantity mingled with the Chusan Palm and similar plants; they flower freely every autumn, and during winter they are always acceptable and prominent subjects amongst hardy fine-foliaged plants.—J. GROOM, Linton, Kent.

NOTES OF THE WEEK.

Salvia leucantha.—Mr. Gumbleton informs us that this plant is now one of the charms of his greenhouse, every bit of branch flowering profusely. It is somewhat shrubby, and the leaves, which are wrinkled, resemble those of *Buddleia globosa*. The flowering shoots are covered with a dense purplish down, which, with the pure white corolla set in the deep violet-purple calyx, gives the plant a delicate and novel appearance, and renders it a highly desirable decorative subject.

The White-flowered Lycaste Skinneri.—This extremely rare Orchid will in a day or two expand its chastely beautiful waxy-white blossoms in Messrs. Veitch & Sons' nursery at Chelsea. This novelty is all the more valuable on account of its being one of the cool house section, and apparently as amenable to ordinary treatment as the type, which, with its numerous varieties, has become so popular.

A Golden-leaved Jasmine.—On Mr. Rutland's house at Goodwood there is a large surface covered with a plant of the common Jasmine, which is freely variegated with rich golden-yellow, some of the young shoots being of the same colour, with the exception of a small strip of green. As a variety of our well-known and favourite Jasmine it may be worth increasing.—H.

Roses at Goodwood.—There are some superb examples of Roses at Goodwood trained on the pegging-down system; each specimen covers many square feet of ground, and the flowers are produced by the shoots that are pegged down, those to be pegged down in their turn for next year's bloom being allowed to grow in the centre. The effect of specimens thus managed, as compared with standards or half-standards, is most satisfactory.

Lasiandra macrantha.—There are many examples of this fine stove shrub at Goodwood now producing their rich purple flowers, which are extremely pleasing and effective in a somewhat cool stove, a temperature most agreeable at this time of the year. This *Lasiandra* is a very valuable winter-blooming plant.

The Rough-leaved Dianella (D. aspera).—Berry-bearing plants in general commend themselves to notice at this season when flowers are somewhat scarce, and this handsome Australian plant is certainly one of the most ornamental for greenhouse decoration. It grows about a yard high, and has woody stems terminated by a tuft of lance-shaped leaves. The flowers are small and blue, borne in panicles during summer, and are succeeded by dark blue berries, which resemble in size and consistency the North American Snowberry. It may be seen in the Temperate House at Kew.

Begonia peruviana.—To Mr. Gumbleton we are indebted for flowers of the remarkable, and, as we think, very handsome and distinct *Begonia peruviana*, which was originally sent out as a variety of *B. octopetala*. It certainly seems a very fine winter blooming plant.

Billbergia vittata macrantha.—In the Palm House at Kew this splendid new variety is now very attractive. It has rich purple blossoms borne in long, drooping racemes furnished with numerous scarlet membranous bracts, which have a very showy appearance. The foliage, too, is very ornamental, as it is marbled and transversely marked with greyish hue on a bronzy-green ground. It is known in some collections under the name of *B. farinosa*.

New Hybrid Lady's Slipper (Cypripedium albo-purpureum).—Of the numerous hybrid Lady's Slippers that have emanated from Messrs. Veitch & Son's establishment during the past few years, there are few handsomer than this one. It is the result of a cross between the pretty little *C. Schlimi*, with deep rosy-tinted flowers, and *C. Dominii*, itself a hybrid between *C. caudatum* and *C. Pearcei*. The flowers of *C. albo-purpureum* are somewhat similar in tint to that of the popular *C. Sedeni*, but with considerably more white intermixed, and the flowers, which are larger, are characterised by long twisted tail-like segments, which render it highly attractive and well deserving of a place in every choice collection. In the note last week on *Cattleya Dominii* the parentage was given as *C. labiata* and *C. amethystina*, whereas it should have been *C. maxima* and *C. amethystina*.

Bouquet Flowers.—I noticed some very handsome bouquets in Warren & Craik's shop, in Jermyn Street, the other day, composed of white flowers with a sprinkling of a beautiful pink *Pelargonium* amongst them. The *Pelargonium* was the kind called Mrs. William Paul, and the combination struck me as being particularly pretty.—J. H.

Roses on Trees.—We were greatly pleased at Wiltton to notice a very sensible and artistic use made of the more vigorous climbing Roses by training them up the bare stems of Pines and

other trees. The effect was excellent, even late in November. I have seen the same thing carried out before, but never saw it so well done or the Roses so vigorous and high as here. A list of the kinds that have succeeded best will be found in THE GARDEN of last week (p. 510).

The Imperial Dahlia (D. imperialis).—Of this magnificent species we have lately seen some fine examples in the Palm House at Kew. It would not be recognised as a Dahlia at all, as it is so unlike the ordinary flowers bearing that name, though it resembles considerably the single flowered varieties of which we have of late heard so much. The large white crimson-eyed and gracefully drooping flowers of this species possess a beauty which far surpasses that of the other varieties, and its majestic appearance is much increased by being borne on stems about 10 ft. high. On the other hand, its great height renders it unfit for any but lofty houses, where there is ample room for its development, as it is unfortunately late in the season before it commences to flower, though it may be grown in the open air throughout the summer and early autumn. A coloured illustration of this noble plant is given at p. 352, Vol. XII., of THE GARDEN.

Coriaria ruscifolia.—Being at Kew the other day and observing this shrub, which you justly note for its beauty of form, I happened to detect for the first time its peculiar floral structure and development. The fruit appears to be a berry, but it is not so, and very curiously it is the petals only that produce the resemblance. When the flowers open the petals are small and green, though fleshy; afterwards they swell, become purple, and enclose the ripe carpels. On first inspection it might be supposed that the purple mature petals are carpels that have separated from each other, exposing seeds at the base; but on examining the parts during different stages it is easy to notice that the apparent seeds alone result from the pistil. This species is a native of New Zealand, where it is called "Tutu." The berries yield a purple juice much liked by the natives, but which soon ferments. A wine made from it is said to taste like Elderberry wine. The seeds are poisonous, producing convulsions and death. I have not seen this species fully exposed, but *C. myrtifolia* makes a handsome bed, though the branches are cut by severe frost.—L.

New Hybrid Nerines.—The Pine-apple Nursery, Maida Vale, is notably rich in all kinds of tender bulbous plants, and visitors to it may invariably find something in that way in flower throughout the year. At present the most conspicuous amongst them are the beautiful hybrid Nerines, the result of Mr. O'Brien's manipulation. The majority of the species of Nerines are, in their pure and simple state, very beautiful, but one of these hybrids—which, by the way, is unnamed—far exceeds in softness and richness of colour any that we have hitherto met with. It is the result of a cross between the old but little known deep rosy-pink *N. flexuosa*, which is such a charming plant for greenhouse decoration in winter, and the earlier-flowering *N. Fothergilli* major, whose brilliant crimson flowers charm every one who sees them. The hybrid in question partakes in a striking degree the characteristics of both parents, and especially as regards the colour of the flowers, for the glaring vermilion tint of *N. Fothergilli* is toned down, as it were, by the soft rosy hue of *N. flexuosa*, the result being a most pleasing delicate carmine, a colour rarely met with in flowers. Other hybrids here are very pretty, but not so striking as that just named; but all are well deserving of attention, on account of their adaptability both for greenhouse decoration and for cutting purposes, for which the flowers are very suitable, as they are developed on long stalks. This and various other classes of plants which have gone out of fashion ought to be more generally grown than they are, helping, as they do, to break that monotony which the culture of only a limited number of plants invariably produces.

Lectures on Fruit Trees in Paris.—M. Forey, a distinguished member of the Paris Horticultural Society, gives every year a free course of public lectures on the culture of fruit trees. The course for the ensuing year will include the following heads:—Pruning; Economical Methods of Production; the Culture of Peach and Pear Trees at Montreuil, and of the Vine at Thoméry. These lectures will be illustrated by practice in an adjoining garden. When, let us ask, will matters of this kind receive similar attention in this country?

The Nurserymen and Gardeners' Annual Dinner.—which took place the other day in Edinburgh, seems, from the account given of it in the *Edinburgh Courier*, to have been a most interesting meeting, attended by most of the head gardeners and leading nurserymen in that neighbourhood. Various speeches were made, and amongst them one on the Royal Caledonian Horticultural Society, which was stated to be the first Society that paid its prizes in cash on the day on which the show took place, and also to be the first that had held an international show.

COUNTRY SEATS AND GARDENS OF
GREAT BRITAIN.

GOLDER'S HILL.

WHILE one thinks of the saddening result of what is called landscape gardening, as shown in some of the largest and most pretentious places, it is some consolation to know that here and there a small one exists in which some natural and artistic beauty may be found. The big water-squirts, the coloured gravels, the tortuous and unmeaning geometry cutting up the foreground; the want of freedom and of breadth, owing to frivolous designs; the varied rubbish in terra cotta and artificial stone; the barren rectangular style, illustrated in many show places; the brand new "mediæval" fosse, dissecting and destroying all repose, as at Coombe Abbey—many such things one could enumerate, and they are too common. But places where the simple and essential conditions for the most perfect beauty in planting and design are understood or illustrated are far too rare. It is all the more pleasing to meet with an example of simple and most artistic treatment of a garden almost in London, for Golder's Hill is within five miles of Charing Cross, on the western border of Hampstead Heath. As regards design and views, it is the best garden with which I am acquainted in or near this sooty Babylon, and the conditions of its beauty are so simple that there is really little to be said about them. An open lawn there is, which rolls up to the house like a carpet; groups of fine trees, and wide and distant views over the country north of London. On entering the garden, indeed, one is astonished at the extent and beauty of the view and the gradually receding distances.

A sunken fence separates the lawn from some park-like meadow with fine Oaks and Firs, and beyond the country north of London opens up, without any building visible on either side or in the foreground. Our view is from a photograph by Mr. Vernon Heath, which, though beautiful, does not show the breadth of the lawn as much as could be desired for our special purpose. Another engraving, from a sketch showing a view from the house, we hope to have the pleasure of issuing on some future occasion. Our view shows in the foreground certain remains of an old avenue that were left by Mr. Marnock. A walk passed up between these trees, which was done away with, and the green Grass touches their boles at present. From almost every other point of view these trees seem to form a picturesque group, and afford a welcome shade in summer. The whole of the front of the house, it must be understood by those who have not the opportunity of seeing the place, is an easy and perfect lawn, which one can step on to at once without any *impedimenta* of the kind usual in such places. Being on a gentle rise, the ordinary landscape gardener would no doubt have urged this as an additional reason for making some kind of fortification in the shape of a terrace garden, which would have destroyed the repose, verdure, and the freedom of the spot. However, he never wants a hillside as an excuse for his terrace, because he would make it in a Lincolnshire fen as readily as anywhere else. Here, the house originally seeming to follow the drop of the hill a little, it was considered necessary to have a very small terrace, which, however, is not a regular one, but runs on one side into the ground imperceptibly, and does not in the least interfere with the ease of movement from the house to the carpet of green.

Now the only drawback—if drawback it be to such perfect freedom and breadth of airy foreground—is the fact that it offers a continual temptation to unthinking people to dot it over with flower beds, or allow evergreen trees to be planted almost nursery fashion. Many places, originally well laid out,

are spoiled by this thoughtless dotting about of objects which please the eye for the moment. The question of flowers is the greatest difficulty, because people are so well accustomed to have all their flowers gathered in front of the house, that, if abundant provision is not made for them elsewhere, the carpet is apt, some day or other, to be dissected into a number of ugly flower beds. The best way to guard against this is to provide abundance of simple beds elsewhere, which, half seen peeping through the trees, or met with in groups here and there at no great distance from the house, afford better effects in flower gardening than can be obtained where all the beds are stereotyped under the windows. Thus, where the foreground is a pleasant lawn, it is necessary to have one spot which may answer for the flower garden; and, better still, large isolated beds or groups of beds, in which special subjects can be grown, as they are never grown in the ordinary flat flower-garden, which leads to uniformity in height and otherwise. To have here a group of large beds, simple in outline, with Roses and smaller plants surfacing the ground; next, in some isolated nook, a large oval bed of Lilies, separated by a group of low shrubs and flowering Yuccas from a few beds of hardy florist flowers; then a varied flower garden partially cut off and embowered by trees—these and the like are much better than the usual stereotyped floral rug which is spread before the door. While, therefore, we have so much to praise in the design of Golder's Hill, it is somewhat deficient in provision for flower gardening, which would reconcile all to the sweet repose and ease of the lawn.

The engraving shows the garden front of this house at Hampstead, or rather in Hampstead and Hendon, for the parochial boundary runs through the house and across the lawn. It has been known for many years past as Golder's Hill, and is now the family residence of Mr. Spencer Wells, the eminent surgeon of Upper Grosvenor Street, who purchased an old house and about 40 acres of freehold land surrounding it, and bordering on Hampstead Heath, about ten years ago. The old house still remains, with woodwork and decorations of the Scotch architect Adam, who built the Adelphi, and did so much work in the district of Cavendish Square. Additions have been made to it at four separate periods; but the present aspect was given to it in 1875 by Mr. E. F. Clarke, the architect who advised Mr. Wells in the erection of the wing next the conservatory (the roof of which is seen in the engraving covered by Ivy and shaded by an old Yew), the roof and verandah, and the bay which replaces the old plain front of the east wing. The arrangement of the conservatory, of the connecting covered way between the conservatory and the house (not seen in the engraving), and of the terrace, is due to Mr. Marnock. Mr. Clarke has been unusually successful in his effort to harmonise the lines of the building—especially the gables, roof, and chimnies—with the fine old trees which surround the house and make up an artistic picture; and Mr. Marnock, by his arrangement of a broad level terrace, has quite removed the unpleasant effect which the old house produced (from being built on sloping ground) of slipping down hill. We have often pointed out the advantage of associating the landscape gardener with the architect in the choice of a site and in the elevation of new buildings; and the present is a conspicuous example of the good effect obtained by similar co-operation in the case of additions to and alterations of old houses and grounds.

Hampstead has long been renowned as a health resort, and North End especially so, as it is open to the south and west and sheltered from the north and east, with views extending from Windsor and Harrow to Edgware and Barnet. More than 100 years ago, Akenside, the author of the "Pleasures

of Imagination," in his ode on "Recovering from a fit of sickness," wrote, in 1758 :

Thy verdant scenes, O Golder's Hill !
Once more I seek, a languid guest. *

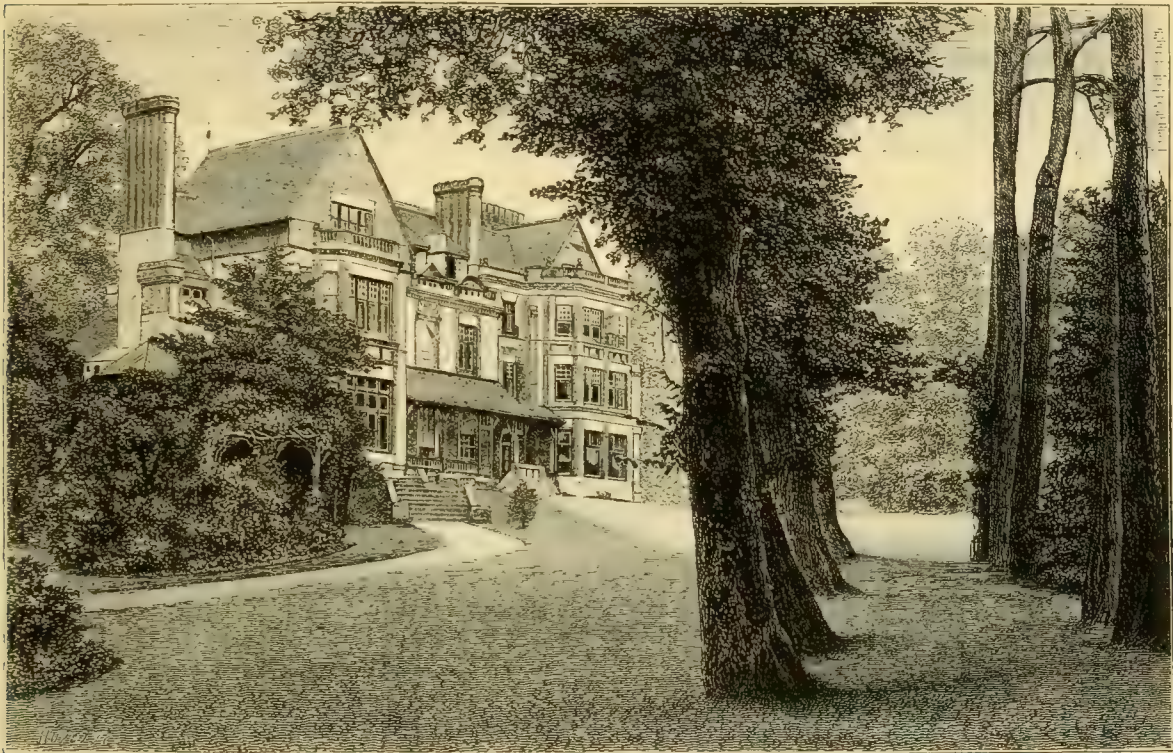
How gladly 'mid the dews of dawn,
By weary lungs, thy healing gale,
The balmy west or the fresh north inhale !
How gladly, while my musing footsteps rove
Round the cool orchard or the sunny lawn. *

Akenside practised more than two years in Hampstead as a physician before he went to London and became physician to St. Thomas's Hospital. His friend Dyson bought a villa at Golder's Hill, and it was on a visit to him that Akenside

recognize the hand of Brown at once, and Mr. Marnock is of the same opinion.

About a hundred years ago the house and some part of the land in Hendon belonged to the celebrated David Garrick. It is not known if he lived in it ; but there are letters of his wife extant, dated "Hampstead." This must have been before he purchased the house at Hampton where he died. Mr. Wells has his signature on two deeds which came into his possession on purchasing the property.

William Howitt's pleasant book, "The Northern Heights of London," is full of historical and biographical reminiscences of former residents around Hampstead Heath, and it contains an interesting account of successive enclosures by



GOLDER'S HILL (SIDE VIEW OF LAWN).

From a Photograph by Vernon Heath.

recovered his health. It is curious that Akenside should have taken his degree of Doctor of Medicine at Leyden, and that a century later the University of Leyden, at its third centenary, should have conferred its honorary degree upon the present owner of Golder's Hill. It must have been about the time of Akenside's visit that the grounds of Golder's Hill were laid out and planted by Capability Brown. There is no direct evidence that he did this, but he is known to have laid out several other places in the district ; and there are certain distinctive peculiarities in the manner in which boundaries and walks are concealed, old avenues broken up into clumps, natural water courses banked up to form ornamental sheets of water, and groups of Sycamore, Sweet Chestnut, Beech, and Birch planted to contrast with Poplars and much older groups of fine old Oaks and Elms, which led the late Mr. Gibson to

lords of the manor of parts of the Heath, and of the contests with the inhabitants, which led to the final stoppage of all encroachment on public rights, and the securing to the nation for ever of this most beautiful of our open spaces by Act of Parliament. Since the Metropolitan Board of Works has been entrusted with its custody, a good deal has been done towards its preservation ; some planting has been successfully carried out, and a beginning has been made in the way of road making and improvement of paths, which, we trust, may be carried on to the general benefit of the district. There is still room for much to be done in this way without any interference with the natural aspect of the Heath ; but this is a subject to which we must devote a special article hereafter. Those who wish for further information about the houses near the Heath may consult Howitt's book for an

interesting account of Lord Erskine, who lived in a house close to the "Spaniards," where, "during the interval of his arduous professional labours, he was zealously engaged in carrying out his improvements. With his old gardener, John Barret, he took his spade, and schemed and dug, and planted and transplanted, and no one who has not tried it can tell the immense refreshment of such an entire diversion of otherwise exhausting trains of thought." Near Erskine lived two other great lawyers, Mansfield and Loughborough, and at North End, in a house now the residence of Mr. Haynes, Lord Chatham found a temporary retreat in 1767.

The views from Hampstead Heath and Golder's Hill northwards over Finchley, Mill Hill, and Edgware; westward across the Willesden and Harrow distinct; and southwards towards Windsor and Sydenham, are especially fine, both in the early morn and towards sunset. Burke was greatly struck with the sunset view when walking with Erskine. "Ah! Erskine," he said, "this is just the place for a reformer; all the beauties are beyond your reach, you cannot destroy them." In one of the conversations of Reynolds and Gainsborough we find the following: Gainsborough is the speaker, and standing on Golder's Hill—"I am no friend to enclosure," said he, "yet this picture composes well; yes, beautifully! intersected as it is. But the enclosures are small, and the trees group well together; better than one usually sees from a rising ground. None but an ass would build upon a hill, unless there be hills above—unless, indeed, one could have the picture lighted up in this glorious painter-like style. Thirteen degrees of distance have I counted, all distinct. Look! Sir Joshua, how that sweep betwixt Hendon and Mill Hill reposes in dusky shade. What aerial perspective! How prismatic! 'tis like viewing Nature through the medium of a lens." And as Gainsborough and Reynolds saw it, it is to be seen now—a few more houses dotted about, the viaduct of the Midland Railway at Hendon not unpicturesque additions; but Windsor, Harrow, and Hendon, and the thirteen degrees of distance, just as they were a hundred years ago. No wonder that the district is still a favourite resort of artists, and that so many choose Hampstead as a residence, or that so many lawyers and doctors since Akenside and Erskine have chosen it for their home. These lines of Leigh Hunt are as true as the poetical prose of Gainsborough:—

Then northward what a range, with heath and pond,
Nature's own ground; woods that let mansions through,
And cottaged vales, with pillowy fields beyond,
And clump of darkening Pines, and prospects blue,
And that clear path through all where daily meet
Cool cheeks, and brilliant eyes, and morn-elastic feet.

The "morn-elastic feet" are just what so many hardworkers in town never possess, and they do find them without the fatigue of a daily railway journey by sleeping on the northern heights of our great city. The celebrated surgeon, Sir Benjamin Brodie, finding his health failing in 1823, tells us in his "Autobiography," that up to that year "I never absented myself from London for more than three weeks in the summer, and sometimes not at all. During the empty season I engaged at first a ready-furnished house at Hampstead, and afterwards had a permanent residence there, at which my family remained, and where I dined and slept, coming to London every morning after an early breakfast." This he did for fourteen years before he purchased the Surrey property at Betchworth.

We need say little more as to the situation of Golder's Hill or the views from the house. Our engraving is from a photograph taken about two years ago. Since then the appearance of the house, it may be remarked, has been greatly improved by the growth of climbing plants. On the pillars of the verandah, climbing Roses and Clematis remove all

aspect of stiffness, and in front of the steps, leading up from the terrace, we saw last week, and gathered on Monday, December 1, three fine blooms of the old China Rose, and left many unopened buds, although within a hundred yards the ice was covered by skaters. The Rose is growing amid a fine plant of a large-leaved Ivy (*Regneriana*). Close by are three Camellias which bloomed well last spring, having stood the winter better than common Laurels in the same position. A fine old plant, carefully preserved from the old building, of *Wistaria*, now reaches well up to the third story, and the old garden house, surrounded by rustic arches and covered by Ivy, is picturesque at all seasons. The winding path to the left of our picture was diverted by Mr. Marnock from between the trees to the right, where it formerly passed, in order to enlarge the lawn, to show the trunks of fine Elm and old Scotch Firs rising directly from the Grass, and to open up the whole front to light and air by the removal of a shrubbery. In order to bring ornamental water better into view from the house, advantage was taken of necessary alterations of level to form a bowling green, and in several other instances Mr. Marnock's taste for natural gardening has been most successfully acted upon. A formal rectangular pond, with a high, ugly, and dangerous bank, has been enlarged into a sheet of water of sufficient size to afford plenty of room for skating, with a graceful outline, the ends skilfully converted into an inlet and an outlet under rustic bridges, giving the appearance of a stream, and with masses of shrubs so planted on the sloping banks as to remove all feeling of artificial stiffness or uniformity. Many trees, originally planted as nurse trees, but left to injure the finer specimens they were intended to protect, have been felled. Others, dead or decaying, have been removed, and planting of some of the best varieties of the Conifers recently introduced, with ornamental deciduous trees of different habits, and flowering shrubs, has been so judiciously planned and executed, that in a very few years time the natural beauties of the spot eulogised by Gainsborough, Burke, and Hunt will be more and more enhanced by Art. The wild garden in this year's planting is receiving more attention, and Mr. Alfred Parsons has already made sketches in parts of the grounds, which in due season we shall bring before our readers, as happy examples of what may now be found in some of our British gardens, and we hope will, before long, be found in many more. W. R.

Garden Labels.—The best of labels must always be unsightly and incongruous; and amateurs can avoid their use entirely in permanent herbaceous borders, Roseries, and Alpine gardens or rockeries by the use of a cardboard plan for each separate part; if this is carefully made originally, it will be found that there is not the least difficulty in at once identifying the plants. I have found this arrangement work admirably; it is especially useful when planting any fresh specimens in an already crowded border, as any vacant space can be easily selected by reference to the plan, and thus bulbs or other plants at rest are often saved from a cruel and damaging thrust from the trowel. There are, however, still many cases in which the use of labels is unavoidable, and then the aim should be to select the most permanent, and, at the same time, least obtrusive kind which can be devised; to endeavour to meet this view, I have for some years past used a "combination label," which has answered every purpose most satisfactorily; it is made in the following way, viz., A few pounds of galvanised iron wire from 1-16th to 1-8th in. thick, are cut into lengths of about 16 in.; a small loop is twisted at one end, and a supply of Maw's 1½-in. circular labels is hung on and the loop closed. The combination of hundreds can be thus effected in a short time. In using these labels it is well to press the wire into the ground, so that the label is almost touching the ground. Ordinary writing with a hard and sharp pencil will last for many years, and even then, if dull, can be renewed in a few seconds, certainly far simpler than the label suggested by Mr. Williams, which was fairly criticised in a recent number as "too complicated." I hope, therefore, that my label may prove of some use to my brother amateurs.—A. KINGSMILL, *Eastcott Cottage, Pinner.*

THE GARDEN FLORA.

PLATE CCX.—PRIMULA CAPITATA.

Drawn by W. H. FITCH.

HIMALAYAN PRIMROSES.

ROYLE, in his "Illustrations of the Botany of the Himalayas," says:—"Ornamental as are all the known Primulaceæ, they are nowhere more so than in the coldest and most exposed of the Himalayan Peaks, and at a season when returning warmth has just begun to displace the scene of winter's desolation." This is certainly true of the pretty Himalayan species that have already been introduced to this country, and there remain still some species nearly as beautiful, which have not yet been seen alive in this country. Although originally found in very cold localities, most of the species are difficult of cultivation. It seems that it is not easy to find any substitute for the protection which these plants receive from the dense covering of snow which protects them throughout the winter in their native places of growth. *Primula denticulata*, introduced in 1805, appears to have been lost sight of for many years until re-introduced in 1842. *P. Stuartii* was cultivated by Wallich in 1824, but is mentioned as a novelty in England in 1845.

The following rough list, with a key to some of the species, has been prepared principally from notes made many years ago, and away from the herbarium at Kew:—

SECTION I.—*Armerina* (Lindl. in Bot. Reg., xix., t. 31).

Leaflets of the involucre extended downwards into a sheath, as in some species of the *Armerias* (Sea Pinks).

1. *Primula rosea* (Royle Ill., t. 76, 1.; GARDEN, Vol. XVI., p. 12).—Leaves lanceolate, acute, glabrous on each side, shortly petioled, calyx tubulose; the divisions about half the length of the tube of the corolla, the lobes of which are emarginate. Scape four to five times longer than the leaves. Flower pretty rose colour. Now abundant in English gardens. Raised from seed procured from Cashmere by Mr. Elwes. Quite hardy; stood the last winter in exposed situations. Found at Kedar-Kanta; also in Cashmere, and at the top of the Hungarung Ghaut (15,000 ft. to 16,000 ft.), in flower in August.

2. *P. elegans* (D.C.).—Leaves oblanceolate with a winged petiole, enlarged at the base, quite glabrous; scape scarcely twice as long as the leaves, but with few flowers; divisions of the calyx shorter than the tube of the corolla. Flowers large, lilac-coloured, paler in the throat; collected by Jacquemont in the lofty mountains of Cashmere.

3. *P. elliptica* (Royle, Ill., t. 76, 2).—Leaves elliptic, serrated, tapering into very long petioles. Scape two to three times longer than the leaves, few flowered. Leaflets of the involucre about as long as the pedicels. Divisions of the calyx one-third shorter than the tube of the corolla, which is straight, and not enlarged at the naked mouth. Flowers violet coloured, yellowish at the mouth. Found in the loftiest and most exposed mountains of Cashmere.

4. *P. involucrata* (Wall., Lindl., Bot. Reg., 1846. t. 31; Fl. d. serres x., t. 1023).—Almost bulbous, leaves ovate oblong, obtuse, glabrous, attenuated into a long petiole, almost entire. Scape two to three times longer than the leaves. Leaflets of the involucre oval, about as long as the pedicel. Calyx tube five ribbed; divisions shorter than the tube of the corolla, triangular, fringed on the margins. Found on the Roopen Ghaut in June at 11,500 ft. above the sea, the flowers varying in colour from pure white to a slight purple, and sometimes rose colour. Flowered at Chiswick from March to May, 1846, sweet-scented. Probably the same as *P. sibirica*, which is described as having purple-coloured flowers.

5. *P. Munroi* (Lindl. Bot. Reg., 1847, t. 15; Paxton Fl. Gard. 11, 469 and 405).—This is probably only worthy of being considered a variety of the preceding, with the flowers much larger, the leaves slightly cordate, and the tube of the calyx gradually narrowed into the pedicel, instead of being contracted just above the base, and then bulging out. Deliciously fragrant. Flowered at Chiswick March to May, 1847. Now common in England. Found at very great elevations in the Roopen Pass, flowering in June.

In none of the following sections are the leaflets of the involucre extended downwards.

SECTION II.—*Primulastrum* (Duby). Calyx generally loose and expanded. Our common Primrose and Polyanthus, the Chinese Primrose, and the pretty Japanese *P. cortusoides* belong to this section.

6. *P. petiolaris* (Wall. = *P. nana*, Wall. = *P. tridentata*, Don).—Leaves smooth on both sides. Flowers solitary, or one to three in an almost sessile umbel, blue or rose-coloured (according to Don). Lobes of corolla not bifid; throat naked. Found in Himalayas, below rocks, just above the limit of forest in June.

7. *P. mollis* (Hook., Bot. Mag., t. 4798).—Leaves and whole plant covered with soft pubescence. Flowers in whorls, brick red. Lobes of the corolla bifid, with five scales in the mouth of the tube. Flowered in England in April, 1854, and this year in the Regent's Park garden in May and June, but still very rare.

SECTION III.—*Sphondylia* (Duby). Lower leaflets of the involucre large, similar to the leaves in shape. Divisions of calyx two to four times shorter than the tube of the corolla. Flowers in whorls. The well-known and pretty Abyssinian Primrose (*P. verticillata*) is a good type of this section.

8. *P. prolifera* (Wall. in "Asiatic Researches," xiii., p. 372).—Leaves quite smooth. Scape very long. Flowers yellow, sweet-scented. Tube of the corolla ten-ribbed, contracted at the mouth, with five small two-lobed tubercles. Found in the mountains of Silhet.

9. *P. floribunda* (Wall., Tent. Fl., Nepal, t. 33).—Leaves more or less hairy underneath. Plants 4 in. to 8 in. high. Flowers numerous, yellow, fragrant, very small. Tube of corolla hairy on the outside, naked in the mouth. A very variable plant. Found in moist spots on the sides of hills between Mussoorie and Simla, at from 4000 ft. to 5000 ft., in flower in May.

Neither of these two last species are likely to be hardy in this country.

SECTION IV.—*Arthritica* (Duby). Leaflets of the involucre considerably smaller than in the preceding section, and in some species very soon falling off; hence the name of the section. Flowers in whorls.

10. *P. purpurea* (Royle, Ill., t. 77).—Leaves oblong-lanceolate, farinose below. Leaflets of involucre sometimes as long as the pedicels. Divisions of calyx shorter than the much-dilated tube of the corolla, the throat of which is naked, and the lobes obtuse, not at all emarginate. Flowers dark purple, without any yellow in the mouth. Found in the valley of the Jumna at from 10,000 ft. to 11,000 ft.; Tibet, at from 14,000 ft. to 17,000 ft., and in some other localities in the Western Himalayas.

De Candolle places No. 13 and 19 in this section.

SECTION V.—*Aleuritia* (Duby).—Most of the species have the leaves more or less covered with a white or yellow mealy, farina-like substance. Hence the name.

SUB-SECTION 1.—Leaflets of the involucre smaller than in section *Sphondylia*. Flowers numerous, in heads. Pedicels frequently 1 in. to 1½ in. long.

11. *P. reticulata* (Wall. = *P. altissima*, Don).—Leaves quite smooth. Scape, 1½ ft. to 2 ft. long. Outer leaflets of involucre rather broad, lanceolate, and three-toothed at the top, equalling, or rather longer than the pedicels, which are 1 in. to 1½ in. long, the outer ones nodding. Calyx five-angled. Tube of corolla naked. Flowers yellow (Wallich); rosy purple (Don). Found at Gossain Than, in Nepal.

12. *P. speciosa* (Don).—Leaves cordate at base, with long, winged petioles. Outer leaflets of involucre lanceolate, acuminate, three or four times shorter than the pedicels. Calyx tube campanulate, not angled, with obtuse teeth. Flowers red or deep blue purple. Found in same localities as the preceding, which, according to Don, it very much resembles.

13. *P. Stuartii* (Wall.; Bot. Mag., t. 4356).—Leaves, 10 in. to 11 in. long, shining above, covered below with a yellowish mealy farina, "the grains of which (according to Dr. Balfour) are supported on short cellular prolongations." Outer leaflets of involucre ½ in. to ¾ in. long, shorter than the pedicels, which are upwards of 1 in. in length. Calyx covered with farina, twice as short as the corolla, the lobes of which are indented and covered with minute headed hairs. Flowers lively yellow. Collected at Gossain Than, by Wallich. Found very abundantly on Changseil and the Roopen Ghaut, flower



PRIMULA AETNENSIS

ing in June, and bearing ripe seed in September. Flowered at Edinburgh in 1847, from seed sent home by the late Sir James Hope Grant.

14. *P. sikkimensis* (Hook. in Bot. Mag., t. 4597).—Leaves not farinose. Scape 1 ft. to 2 ft. high, pale green. Involucral leaflets slightly farinose, erect, about half the length of the pedicels. Calyx as long as the tube of the corolla, the lobes of which are roundish and emarginate. Flowers lemon-yellow. Found "covering acres with a yellow carpet in May and June at elevations of from 12,000 ft. to 17,000 ft., in Eastern Himalayas" (Hooker). Flowered at Kew in May, 1851, at present abundant in England. There is occasionally a second whorl. Specimens have been seen with thirty to forty flowers on slender drooping pedicels.

SUB-SECTION 2.—Leaflets of the involucre extremely short. Flowers in dense, many-flowered heads, margin of leaves revolute.

P. denticulata (Smith, Exot. Bot., t. 114; Bot. Reg., 1842, t. 47; Bot. Mag., t. 3959; Wight's Icones, 2000).—Leaves generally appearing after the flowers, sometimes hairy, sometimes farinose on one or on both sides. Leaflets of the involucre are sometimes three-toothed at the top. Teeth of the calyx somewhat glandular. Pedicels short. Widely spread in the Himalayas at various elevations. Very common now in England. There is a variety of this called *P. purpurea* which is certainly quite different from *P. purpurea* of Royle. There is occasionally a second umbel.

P. cachemiriana.—At present a garden name. Very close to the preceding, the leaves appearing however with the flowers, covered with a very dense yellow farina below, and sometimes on both sides. Pedicels very short. Flowers rich purple colour above with yellow centres. Mr. Ware, of Tottenham, considers this to be a variety of the preceding. Quite hardy; stood out the last winter without any protection. Is now (November) in flower in my cool greenhouse.

17. *P. capitata* (Hook. in Bot. Mag., t. 4550; Fl. d. serres vi., t. 618).—Leaves oblong-lanceolate, farinose below and sometimes above. Flowers almost, if not quite, sessile, in very dense heads sometimes 2 in. across, deep lavender blue above, paler beneath. Tube of corolla somewhat transversely wrinkled inside. Flowered at Kew in 1850 from seed collected by Sir J. D. Hooker, in June 1849, at 10,000 ft. above the sea at Sikkim; again at Kew in July, 1878, in great perfection from seed sent by Mr. Elwes.

I think it is probable that the three preceding species are all forms of *P. denticulata*.

The accompanying drawing was made from a plant which flowered at Kew during the present year.

18. *P. erosa* (Wall).—Leaves altogether glabrous. Pedicels longer than in any of the three preceding species, radiating, four to five times longer than the leaflets of the involucre. Lobes of the corolla obtuse. Flowers lilac-coloured, paler in the centre. This has been generally considered to be a form of *P. denticulata*, but Regel says it is quite distinct. Found in Kumaon.

SUB-SECTION 3.—Flowers few in a terminal umbel. Plants not very dwarf.

19. *P. macrophylla* (Don).—Leaves elliptic, oblong, glabrous above, farinose below. Involucre four-flowered, with the leaflets four times as short as the pedicels. Teeth of calyx very blunt, keeled, about as long as the tube of the corolla, the lobes of which are obcordate, scarcely emarginate. Flowers a pale lilac colour. Found in Nepal. No specific locality given.

20. *P. obtusifolia* (Royle Ill., t. 77).—Leaves very blunt obovate, farinose below. Involucre five-flowered, with the leaflets about as long as the pedicels. Teeth of calyx linear subulate, two or three times shorter than the tube of the corolla, which is enlarged at the mouth, with the lobes obtuse and not emarginate. Flowers lilac-coloured with a yellow eye. Found at Lippa in Koonawur, and at the top of the Roopen Pass in June.

21. *P. rotundifolia* (Wall).—Leaves about 1 in. or 1½ in. long. The whole plant sometimes covered with farina. Sometimes the leaves are glabrous above, with very narrow petioles often 3 in. to 5 in. long. Scape slender, 8 in. to 10 in. long. Involucre two to eight-flowered, with the leaflets nearly as long as the pubescent pedicel. Teeth of calyx linear-lanceolate, three to four times shorter than the tubes of the corolla, which is enlarged towards the mouth, and surrounded there with a raised ring. Lobes of the corolla blunt and indented. Flowers large, purple. Found at Gossain Than, and in deep valleys between Almorah and Mussooree.

SUB-SECTION 4.—Plants extremely dwarf and few flowered.

22. *P. pusilla* (Wall—Androsace primuloides, Don).—Leaves not 1 in. long, toothed, hairy, scape 2 in. long, with about three nearly ses-

sile, deep purple flowers. Tube of the corolla completely closed with a bunch of milk-white hairs. Found at Gossain Than, in Nepal, and by Sir J. D. Hooker in Sikkim, at 13,000 ft. to 15,000 ft. above the sea.

23. *P. minutissima* (Jacquemont).—Plant about ½ in. high. Leaves farinose beneath, hairy, with glandular hairs above. Scape farinose, shorter than the leaves. Tube of the corolla not hairy inside but glandular. Flowers rose coloured, almost sessile. Found at very great heights in some of the most lofty mountains in the Himalayas, flowering June to August.

24. *P. uniflora* (Hooker).—Plant 3 in. to 6 in. high; leaves very small. Scape bearing one large flower. Found in Sikkim at 15,000 ft. above sea.

25. *P. Stracheyi* (Hooker).—Scape bearing one large flower arising from the creeping prostrate stems.

The following are known only by name: *P. spathulata* (Royle) *P. involucrata* (Royle, not of Lindley), *P. nana* (Royle, not of Wallich). W. M.

GARDENING FOR THE WEEK.

Stove.

Fermenting Material.—Beds of this in stoves or elsewhere above pipes should not be too shallow. Several times, in taking charge of houses where pipes under a bed of this kind existed, I have had them removed, so as to give more depth to the bed. The gain thus effected is that the larger body of matter in this way admissible continues much longer without renewal to exert beneficial influences upon the plants, and it also helps the pipes to warm the house, for which purpose, if there were no other advantages, the introduction of a substantial body of fermenting matter, especially at this time of the year, when the greatest expenditure in fire-heat is necessary, effects a saving in this direction. Where clean Oak or Beech leaves are to be had, and the pit is sufficient to admit of a depth of 3 ft. or 4 ft., they will keep up a brisk heat for a considerable time, though not equal in this respect to that from good tan, which so far is preferable. In all cases where this last material is used, I should advise its being employed in as fresh a state as possible; where used immediately it is done with by the tanners, before it has had time to ferment, it lasts proportionately longer, and is clear from worms, which have such an objectionable disposition to get into the pots of plants, even when merely standing upon the surface of the beds. It is much better to get material of this kind in at once than later in the season. Advantage should be taken, when the old fermenting matter is got out, to thoroughly clean the house inside, both woodwork and glass, as well as lime-washing all the brickwork, by which means there is not only a decided gain in appearance, but the destruction of woodlice, cockroaches, ants, and other vermin, that increase fast where heat is employed, is effected, as well as considerable benefit to the plants, from the freer admission of light through clean glass than when it is coated with the slimy conferva-like matter that always makes its appearance where there is a moist atmosphere accompanied by a high temperature.

Stove Climbers.—Where these are planted out, consisting of such things as Aristolochias, Allamandas, the twining Clerodendrons, Ipomæas, Thunbergias, Passifloras, and any others of like character, especially that have a strong, vigorous growing habit which necessitates their being cut closely in at the winter pruning, it will be well now to let the soil in which the roots are placed get as dry as the plants will bear without injury, as when the roots are thus brought into a dormant condition, there is much less disposition to bleed in plants that are liable to a loss of sap in this way, and which, wherever it occurs, has so far an exhausting influence as to cause them to break proportionately weaker with the extent to which the bleeding takes place.

Stephanotis floribunda.—The good of growing several large plants of this climber in pots is, that they admit of being moved about from one house to another, so as to make growth and be rested at different times, with a view to being started to give a succession. Where plants exist that were forced early last winter, and afterwards made and matured their growth in good time through the summer, which would admit of their now having had a fair season of rest, they may at once be put into the warmest house, where they will directly push growth, which, if the wood has been well ripened, will show flower before the shoots have extended far, and by this means an early supply of this most useful flower can be had. From the considerable length of time which a good-sized specimen, even such as can be grown in a pot and trained to an ordinary trellis, will continue blooming, where there are several plants of this description at hand, they will keep up a succession until those that may be planted out in cooler quarters come in.

Forcing Pit.

The advantages attendant upon having a structure of this kind at command are at no time of the year so evident as during the next three months, as the temperature and condition of the atmosphere requisite for those hardy plants that are being forced into flower is in many cases different to those needed by the ordinary occupants of the stove at this season. In a structure of this description, a good body of fermenting matter is of great assistance, from the influence it exerts on the atmosphere, as also affording plunging material for those bulbous plants and other things that may require it.

Eucharis amazonica.—There is no particular season for the flowering of this plant, as with sufficient stock and the help of houses with different temperatures, it may be had almost continuously in bloom. Strong vigorous plants that have been well grown, and had a short rest, if now put into the forcing pit, and plunged in bottom-heat, will very soon throw up flowers. The best way to secure a continuous supply of these flowers is to vary the times of growth and rest with different portions of the stock, so as always to have at command some that are in a fit condition for introducing to a brisk temperature. For private establishments this will be much better than treating the plants to a more uniform season of growth and rest.

Lily of the Valley.—This plant is a general favourite; yet in private places it is frequently not near so well done as it might be, often through the use of home-grown roots, the cultivation of which has not been such as to impart the strength to them necessary to ensure a full crop of flowers; though, where a suitable position is chosen, and the little attention required is given, it may be grown as well as the fine roots so largely imported, the crowns of which, under fair treatment, will not one in a hundred fail to produce flowers. It is well in the case of home-grown roots to select the strongest in the same way that is practised with those imported, leaving the weaker portion for replanting until they have acquired strength sufficient. There is nothing gained by giving the crowns of this plant intended for forcing more pot-room than just sufficient to hold the roots without too much compression. Pots 5 in. or 6 in. in diameter are better than larger, as if the plants are wanted when in flower for decorative purposes, the small pots give facilities for them, standing where larger ones could not be admitted, and small examples are little inferior in effect. The roots, as soon as potted, may be at once placed in bottom-heat of from 70° to 75°, plunging the pots sufficiently deep to admit of 1 in. or 2 in. of material, such as old tan or leaf-mould, being put over them, which covering will help them to move much quicker. In the course of about a fortnight the crowns may be expected to have advanced sufficiently to admit of their being taken out, as if allowed to remain too long in this position they will become drawn. When taken from the bottom-heat, they should be stood in the body of the house or pit, and covered with two or three thicknesses of paper, such as will subdue the light, gradually removing the paper as they will bear full exposure to the light, for, like Hyacinths and plants of similar description, if the young growth, whilst in a blanched condition, is suddenly exposed to the light, its effects are injurious. Where a temperature of 65° to 70° can be kept up, the flowers will progress apace, and may be looked for being in use in a month from the time the roots were put into heat. I give these details as they may be of use to many who have hitherto treated this plant in a way that used to be common, the results of which were often unsatisfactory.

Hyacinths, Narcissi, and Tulips.—These may now be introduced to the forcing pit or stove as soon as they have made enough root progress; but until in this condition, it is no use subjecting them to heat, as however strong the bulbs may be, unless they possess enough feeding fibres, the flowers will not come strong. It is not well to hurry plants of this description so early in the season as this, and as soon as the crowns have got gradually inured to bear light they should be placed sufficiently near the glass to prevent their leaves being drawn. Hyacinths and Narcissi are frequently seen with lengthened foliage, so weak as not to be able to support itself, and the flower stems similarly elongated; in this way they have not a pleasing appearance, to say nothing of the flowers under such conditions being very much sooner over than they should be.

Crocuses, Snowdrops, and Scillas.—The former of these has been long used in quantities for forcing, and the two latter are equally suitable and give variety, all coming on with less heat proportionate to their natural disposition in blooming early with a low temperature; but where Scillas are forced, strong stout roots should be used, the flowers produced by which will be found very different to those forthcoming from weaker examples.

Lilac.—This is undoubtedly one of the finest of all forced winter flowers, especially manageable in the size of the plants, where these

have been grown and properly prepared for forcing, as other shrubs more generally used for the purpose. It will bear more heat without in any way weakening or rendering the flowers liable to flag than any plant I ever forced; but to have the bloom white, such as the Continental growers produce, the plants must be darkened whilst being brought on into flower; it should be kept moist, the plants being freely syringed.

Such subjects as the double *Prunus* and *Deutzia gracilis* may also be placed in heat, and if plants are available that have been forced in previous years, particularly of the *Deutzia*, which, after flowering last season, were allowed to make growth in some heat, say a Vinery or Peach house at work, the growth will have been early matured, and they will bloom much better with little forcing than those that have made their growth in the open air. As this is one of the best and most useful of all forced shrubs, or, in fact, plants of any kind for winter flowering, it should be grown in sufficient quantity to keep up a succession until the spring. Rhododendrons, in most parts of the country, have set fewer flowers than I almost ever recollect to have seen, and the fine small examples, full of bloom-buds, will be more difficult to meet with this year than usual. If any of these are put into warmth so early as this, it should only be the kinds that bloom naturally early and too soon in the open air to escape frost.—T. BAINES.

Flower Garden.

Auriculas.—Intense frost still continues, and although nothing can be done to the plants except to shelter them from frosts of undue severity, preparations may be made to facilitate work when it is pressing in spring. Compost may be prepared for surface dressing the plants when the time comes. As much as is likely to be required may be prepared and stored in a dry place. The compost for this purpose should be much richer than that required for potting purposes—say two parts good loam to one of rotted manure, with a small portion of leaf-mould, sharp sand, and pounded charcoal. Many growers are very careful to frequently turn over the compost which it is intended to use for potting purposes during the winter, but more harm may be done in this way than by allowing the heap to remain undisturbed. If the heap is wet or in a frozen state, I would not touch it, indeed, I never do so at any time. The loam is stacked up in a heap, so that the wet is thrown off, and never at any time is it not in good condition to use. I like to have the compost mixed and laid up in the shed about three months before using it. The labels are apt to be defaced by exposure, and it may be well now to see to renewing them.

Carnations and Picotees.—The same remarks apply to these as to Auriculas; all our plants are frozen, except the few that have been placed over a hotbed, and these have not been so comfortable as we could wish. I was at Mr. Dodwell's the other day, and he told me that he kept a lamp burning night and day in a cool house in which he keeps his store pots; his reason for this is to keep the frost out as much as possible, though it does not quite do so. When a thaw does come, there will, he says, be a much better opportunity to commence potting at the earliest possible moment. If the plants are not established early, so that they can begin to grow away slowly at first, there is no chance to get a good bloom in the current year. When the plants begin to throw up their flower stems, there is such a rapid drain upon the resources of the plants that unless they are well rooted failure is certain to be the result. No one would think of applying water to the roots while frost continues, and even if there should be a thaw it is best at such a time to err on the side of dryness. See that neither melted snow nor rain are allowed to find their way through the cracks of the glass, and so cause drip to fall on any of the plants. In the last line of my notes on Carnations (p. 512) last week, the word "free" should be substituted for "suffering."

Hollyhocks.—These need little attention at present; they are quite safe where planted out in cold frames. Those on shelves near the glass in a cool house, from which frost is excluded, will require water when they are dry, but the plants do not like much wet at this season.

Pansies in Pots.—These are also at rest. We plunged the pots this year in dry Cocoa-nut fibre refuse in preference to placing them on a stage. The plants were not so early established as they ought to have been for such an early winter. In all cases where an early bloom of any of these hardy flowers is required, it is very desirable to propagate the young stock early and pot the plants some time before there is any chance of severe frost.

Pansies, Pinks, and Carnations.—The hardy kinds of these and other plants in beds must just be left alone at present. Where they are well covered with snow they will be quite safe as long as they are in that state. It is when a thaw comes, and the beds are soaked with melted snow, to be again frozen, that there is

danger. Many plants that can stand bravely any amount of frost speedily succumb to alternations in the way of weather in our very changeable climate. Any protection that can be devised to shelter the beds from frost when the ground and plants are wet will be useful.—J. DOUGLAS.

Hardy Fruit.

A continuance of the present severe frosty weather will, as a matter of course, put a stop to all planting and renovating of borders; but there are other operations which, but for such weather, might never have attention at all. Amongst these are grubbing up old fruit trees, cutting out all the dead wood in orchard plantations, and otherwise thinning out the branches, particularly such as are crowded and intersect each other. All Moss or Lichen should also be rubbed off them, and if afterwards they can have a good splash over with newly-slaked lime and soot, this will prevent the Lichen from growing again for a long time to come, and so put an end to a convenient harbour for insects. Usually such orchards are on Grass, and, in the matter of manure, are left to take their chance, a circumstance more attributable to custom than to any real feeling that manure is not required, which it most certainly is, in order to ensure fine fruit. A good dressing of stable manure ought to be given every alternate year, and if this be scarce, soot and wood-ashes form a most excellent substitute, and should be applied now, in order that the winter rains may wash them down to the roots before growth commences. By thus annually devoting a few days' labour to old orchards, they might be made much more remunerative. If the sorts are not the best, and the trees are healthy, this can soon be remedied by grafting; and when pruning good kinds the shoots should be saved for grafts, and heeled in at the base of the trees till required in March. The trees that have to be grafted may be headed down at once. Cut off all ground suckers with a spade. Whilst the ground is hard through frost, let all wheeling of manure and soil on to the fruit quarters be done; also clear up all prunings, hedge-clippings, and vegetable refuse of every kind for burning, the ashes from which is a valuable fertiliser for any crop. Though it seems wrong to prune trees in frosty weather, I have never noted any ill effects from it; but I would recommend that only the commoner and hardier kinds be done, and this solely with the view of forwarding the work. Currants, Gooseberries, and Raspberries may all be done in such weather as that we are now experiencing without any risk of danger whatever. American blight is more than usually prevalent this year on both Apples and Pears, and in order to effectually cleanse the trees from it, much pains will have to be taken to first of all wash it off with hot soapy water, and then to paint over the affected parts with a strong solution (8 oz. to the gallon) of Gishurst Compound; or a strong solution of soft-soap water, and half a pint of paraffin oil added to 3 gallons of the solution, is equally effective. A greater quantity of the oil might prove fatal, but this amount we have proved to be both safe and a sure destroyer of the insect. Amongst all hardy fruits, Peaches and Cherries are the most subject to attacks of aphids early in summer, and, by way of prevention, these should always have a winter dressing of the solution just named. Cherries may have it as strong as recommended for American blight; but Peaches should have the Gishurst at but 4 oz. to the gallon of water. I believe that Gishurst is not always of the same strength; hence, to be safe, I prefer to use strong soapy water only as a dressing for Peaches. The walls as well as the trees require dressing, and these we do with soap-suds fresh from the laundry applied with the garden engine. Such an annual dressing, by preventing attacks of aphids, saves a large amount of labour and annoyance in the early summer months, when, through pressure of other work, it is difficult to find time to attend to them. As soon as the frost disappears, push to a close all arrears of draining, trenching, and forming fruit-tree borders, in order that the ground may get consolidated before planting the trees, which ought now to be delayed till February. See that recently-planted trees are securely staked, and that both these and all that require manual aid should at once have a thick covering of the best manure at command.—W. W.

Extracts from my Diary.—December 15 to 20.

FLOWERS.—Putting a few Azaleas into heat. Looking over bedding plants, and pulling off all decayed leaves and blooms. Looking over Violets in frames, and picking off all dead leaves. Sponging Camellias and Stephanotis.

FRUIT.—Getting first batch of Strawberries (started in leaves in a frame) into Vinery to continue their growth. Looking over late Vines, and pulling off all decayed leaves and stalks to admit light. Covering up Cherries in tubs and pot Figs with a little dry straw for protection from frost. Mulching Plum border. Emptying Peach house of old border, and scrubbing paint with soft soap to kill insects. Putting fresh linings to Pine pit. Pruning Peach

trees in second house, and Figs on back wall. Cutting ties of Peach trees in cold houses. Painting Fig trees on back wall of Peach house with a solution of Gishurst Compound, soot, and clay. Preparing bottles for Grapes, and clearing out place in fruit room for storing them.

VEGETABLES.—Tying winter Cucumbers, and thinning the fruits. Wheeling manure on ground ready for digging in. Covering up Potatoes in store rooms with hay for protection from frost. Turning Mushroom manure to ferment. Shifting French Beans from pit where they have been raised to lighter house. Cutting Veitch's Self-protecting Broccoli ready for use; also Mushrooms. Getting in a little more Seakale into Mushroom house; also more Endive and Lettuces for blanching. Sowing Mustard and Cress.—R. G., *Burghley*.

THE FRUIT GARDEN.

PACKING PEACHES FOR MARKET.

UNDER the false impression that Peaches do not attain their full market value until they are quite ripe, eight out of ten private growers of this valuable but perishable fruit allow them to hang too long on the trees before they commence gathering, and are considerable losers thereby. As soon as a Peach has attained its full size and colour, although quite hard to the touch, it is in the best possible condition for sending to the fruiterer. Risk of injury in packing and travelling is then comparatively small; the gain of a single week in the case of early Peaches often makes a considerable difference in the price, and they arrive in a fit state for storing away in the vaults, to come out in their turn, instead of having to be thrown into the market immediately upon delivery. By way of illustration, I may state that it is by no means unusual for the Messrs. Webber to have from sixty to a hundred dozen of Peaches at one time in the month of July in their vaults gradually but surely ripening, and these are the fruit for which they pay the highest price to the growers, for the simple reason that they can hasten or retard them to suit the requirements of their trade. Every private gardener who is in the habit of sending large supplies to his employer's town residence, knows that it is not always safe to be without ripe Peaches fit for immediate use, and this fact soon teaches him that these over-ripe fruit when sent away at the eleventh hour are sold at a great loss to the grower and annoyance to the dealer, who is obliged to force them in a glutted market, instead of stowing them away for a few days to meet a good order which might enable him to give a much higher price. It is not for these men who have bought and paid for their experience that I am now writing, but they will bear me out in saying the state of ripeness is quite as important as the mode of packing.

I will now proceed to lay down a few rules to be observed by young beginners. Always have a good supply of dry Moss in store, the best and cheapest of all packing materials. If properly beaten and prepared it is soft, elastic, and never heats in the boxes. Be very careful in the use of bran, an excellent thing if pressed in very tight; but as it has a tendency to sink in bulk when shaken on the journey, the Peaches become loose, and, as a matter of course, separate from the packing and arrive in a bruised and worthless condition. Never use wadding (the worst of all packing materials) for soft perishable fruit, as it absorbs moisture, becomes very hard, and heats on the journey. Avoid using large boxes; 24 in. by 14 in., and 4 in. deep inside measure, is a suitable size for twenty to twenty-four fine fruit. Always have the lids in one piece, nail slightly, and cord one or more boxes together. Place the direction label, and one marked "Fruit, with care," on the top—"To be met at the terminus: this side up." I once heard of a porter who walked into a shop in the Centre Row, carrying a box with cards on the top and two sides. Puzzled by his instructions, he informed the fruiterer that he had given each of the cards a turn upwards on his journey from the station, and hoped he had succeeded in carrying out the sender's directions! Always gather in very close before the end of the week, and unless specially ordered, never send away later than Friday morning. Although Peaches may be sufficiently advanced for sending away, their hold is too firm to admit of their being plucked from the tree without injury by the pressure of the fingers; but if a piece of wadding be taken in the left hand, with which the Peach is firmly grasped, and a pair of finely-pointed scissors be used with the right it may be detached without being bruised. It should then be placed on a piece of silver paper 9 in. square, and laid in a shallow box or flat basket containing a good bed of Moss. When gathering—which should always be performed early in the morning—is finished, proceed to the packing-room and prepare the boxes by lining the sides and ends with paper, allowing the half of each sheet to hang over the sides for turning over the top when all is finished; then place a good layer of Moss evenly over the bottom, slightly tilt one end, and commence by folding the

fruit in the squares of paper on which they are resting. Shake a little loose Moss along the lower end of the box, and place the first Peach in one corner. Keep it in its place with the left hand, follow with more Moss and fruit, never withdrawing the left hand until the first row of four is finished; then form a division with more packing, and proceed until the box is full. Each Peach will then be resting in a soft nest of Moss—say an inch from the bottom, and about the same distance apart. Continue the introduction of packing until every fruit is quite firm in its place, with room for half an inch of Moss between the fruit and the lid. Owing to the lightness of the lid, a little judgment will be needed in placing the last layer, as safety in transit depends upon the degree of tightness secured by pressing down the lid; turn over the half-sheets of paper, nail slightly, and always cord well. When bran is used the boxes should be well-lined with plenty of paper to turn over the top, to prevent it from working out. Always make a good bed, as many Peaches are spoiled by being placed too near the bottom; place all the Peaches on this bed in the position they are to occupy, keeping them half an inch from the sides, and an inch or more apart; then fill up with bran, and shake it down, but it will not be safe to rest satisfied with shaking only, as constant shaking on the railway soon reduces the bulk, and in nine cases out of ten where bran is used the Peaches work up to the top or one end, and the bran going in an opposite direction, loss and annoyance follow. An abundance of bran should be placed on the top, and be well worked down into the corners and between the fruit with the fingers, until every part is quite firm and a little higher than the sides of the box, so that an inexperienced person might think it too full, then fold over the paper and secure the lid with two small nails.

When more than one box is sent off always make first and second quality, place record of quantity and directions on the lid, never on the sides or ends. When large ripe Peaches have to be packed for private use immediately upon arrival, they should be gathered two or three days before they are wanted and placed upon squares of paper or hair sieves. Great care must be observed in moving them with pads of wadding in the hands, and an extra quantity of Moss should be placed under them in the boxes. The folding of these and all tender fruit is best performed on a sheet of wadding spread out upon the table, and they should be packed with the apex pointing upward towards the lid. Nectarines and Figs may be packed in shallower boxes and in exactly the same manner as Peaches, but on no account should Figs be packed in bran or wadding, as, owing to the moist nature of the fruit, they are liable to heat, independently of the danger of their coming in contact with and adhering to the fruit, from which it is hardly possible to detach them. Paper shavings of fine quality are very good, and, owing to the fact that they admit a certain quantity of air, decomposition in Figs, which must be well coloured before they are gathered, is not so likely to set in; but in good hands, with confidence in packing as in the performance of all delicate operations and a little practice, properly prepared Moss will be found the best and least costly medium for Grapes, Peaches, and Figs.—W. COLEMAN, *Esq.*, in *Gardeners' Chronicle*.

LATE BLACK HAMBURG GRAPES.

IN reference to this subject, "J. S. W." says (p. 458): "In order to have Black Hamburgs late, it is not desirable to start the Vines too soon; indeed, they should be kept back as late as possible, or till the buds break naturally, as used to be the practice when the construction of Vineries allowed us to take the Vines outside till the time came for starting them. But even in our modernly-constructed Vineries there need be no difficulty in this respect, for by keeping the ventilators open it is easy enough to prevent growth till May or later; and Black Hamburgs started at this season and pushed on in a moderate temperature, will ripen 'about' the beginning of October, which is about as good a season for ripening Grapes generally as we have, and the fruit will keep three months longer." These are "J. S. W.'s" exact words. I certainly find, on referring to p. 496, that I used the words "early in October" and "latter part of May," but these words make no material difference except in this, that "J. S. W." by vaguely saying "May or later" gives his Vines a longer period of rest, and therefore a shorter time in which to mature their fruit. Yet in support of his argument (p. 516) he sets aside the months of May, or maybe June, or some other month, and substitutes April in order to rectify himself, and would, I dare say, have your readers suppose that these five or six weeks (for which I contended) make but little difference in the end. My statement was that Vines reaching maturity in the beginning of October could not through the spring months be kept at rest till "May or later," and this I still maintain. To keep a Vine at rest for eight months, and leave it only four in which to perfect its fruit is simply, to say the least about it, contrary to all reason; nor would I recommend any one to try to do so, even as an experiment. For

myself I may say that I have this autumn seen in late Vineries in various quarters more immature Grapes than ripe ones, and I feel sure that such would not have been the case had the Vines been encouraged earlier by simply closing the houses sooner, and pushing them along a little brisker afterwards. Therefore, I trust that my remarks on maturing late Grapes will not be so readily dismissed from consideration as "J. S. W." assumes. Adverting to "J. S. W.'s" remarks on the extraordinary crops of Peaches and Nectarines produced annually in the houses here, I consider that already sufficient evidence has been adduced as to the fact, but as he still retains doubts, I trust he will be able to make the journey here which he proposes to do in July next, when I hope to have a greater surprise in store for him, for I have never had my trees in such good condition at this, their winter pruning, as they are now.
Sturbury Park. THOS. COWBURN.

LARGE v. SMALL GRAPES.

DURING the last few years a great change has taken place in regard to Grape culture; instead of the very early examples of new Grapes upon which some cultivators used to pride themselves, we have now generally adopted a system of growing late thick-skinned sorts, that are kept in good condition until Hamburg and other early kinds are fit for the table, and in this respect we have, I think, stolen a march on our forefathers; for, an early Vinery in which the crop is ripe in May, will, under good management, last for years, whereas if the crop is required early in the new year, it cannot last long. Thus far I think, we are benefited by the introduction of Lady Downes, Alicantes, and similar sorts, and these, too, seem likely to be displaced by Gros Colmar, in comparison with which small berried varieties are lost, even if grown under exactly similar conditions. In this however, we exchange quality for quantity, a circumstance to be regretted, as many of the finest flavoured Grapes are likely to be lost entirely or only grown by connoisseurs, who are proof against the prevailing taste for large berries. There can be no doubt that if Grapes were judged the same as Melons, by flavour, the Frontignans, Royal Muscadine, West's St. Peter's, and sorts that were popular twenty years ago, would beat all the new kinds now so largely grown, and yet both Melons and Grapes are supposed to be grown to eat. Yet one is judged as if it were solely for ornament, and the other for eatable qualities alone. In nine cases out of ten, the largest best looking Melons get no recognition at all. But that is not the case with Grapes, large berries and heavy bunches have caught the eye of the judges at fruit shows, and of writers for the gardening press, until the remark "what fine Grapes they had at such-and-such a place," comes to be considered of far more importance than "what good Grapes we tasted at some other place." In this respect, all of us influence one another, and at present the prevailing fancy is all in favour of large bunches and larger berries, and few of the high flavoured sorts, if we exclude Muscats, are able to hold their own against large coarse growing sorts. Doubtless, a reaction will come sooner or later as popular opinion generally rushes to extremes; still I hold that it would be an interesting and instructive lesson and variation, if at fruit shows we had special classes set apart for high flavoured kinds; such a classification would simplify the duties of the judges and tend to indicate the special claims of each particular kind of Grape exhibited. Raisers of new kinds always look to improving, or enlarging, the points most prized in the subject operated on; therefore, unless some such plan as has just been stated is carried out, quantity may eventually supersede quality to an extent that may prove anything but an advantage if pushed to extremes.

Linton.

J. GROOM.

Norwich Prolific Nut.—The history of this new Nut is thus given to us (*Florist*) by Messrs. Ewing & Co., of Norwich, in whose nursery it was raised: "The original plant is from fifteen to twenty years old. It came up promiscuously in the nursery amongst other stock, and was left out of curiosity. It still stands where it first grew, and produces freely every year, and has done so for some years past. The fruit is quite distinct from and much larger than that of any other variety we grow. The shell is almost as thin as that of the Cosford, and is well filled, the kernel being of good flavour. We think it will also turn out to be a good keeping sort. We do not observe that it often produces fruit in clusters, the Nuts being usually two or three only on a stalk, and most commonly two. It is, however, a very prolific sort, and plants not more than 2 ft. high frequently produce fruit of very large size." The young wood of this variety of Nut has a thick covering of hairs, and the leaf-stalks and leaves are similarly clothed. The leaf is roundish, deeply cordate at the base, with shallow angular lobes, and coarse serratures. The Nuts are short, plump, nearly square in outline, $2\frac{1}{2}$ in. in circumference, flattish at the base. The kernels, which are full and of

excellent flavour, are enveloped when ripe in a whitey-brown skin, enclosed by a somewhat thin and light brown shell. This new variety seems to come nearest to the Cosford Nut, in the characters of the short husk and somewhat tender shell, but is of different shape, being squarish rather than oblong, and the husk in some examples is quite as long as the Nut.

THE INDOOR GARDEN.

LILIES UNDER GLASS.

In the cultivation of Lilies for greenhouse decoration, it frequently happens that they are left much too long without repotting, an operation that should be performed immediately after the fall of the leaves, as then they can be handled and the balls reduced with safety, which cannot be done later on when the large fleshy roots have pushed out from the bulbs, they being of an exceedingly tender and short brittle nature. By giving these fresh soil early, they soon thread their way amongst it, and from the fresh food they find there add considerably to the strength of the young stems as they emerge from the scales. In preparing the pots the drainage is a very important matter, as owing to the copious supplies of water Lilies require when growing, it is very necessary that provision should be made to admit of its passing freely away. This being the case, crocks should not be spared, and to ensure these being kept clear and open, it is a good plan to scatter a little Moss over them, and on this a sprinkling of soot, which answers the double purpose of a stimulant at a time when it is most needed, and helps to keep out worms, these having a very strong objection to coming in contact with it, even though it may have lain and lost much of its properties by the washing it there undergoes. Not only do worms do injury by the perforations they make throughout the ball, but they initiate themselves between the scales of the bulbs, and I have seen numbers of *L. auratum* destroyed by them. Whether they devour any of the more fleshy part I am unable to say, but certain it is that when they get amongst them the bulbs soon begin to decay.

This may in a great measure be prevented by covering them with sharp sand, which keeps the fine soil from coming in immediate contact with them, and preserves them in a clean healthy condition.

The great thing in the successful pot culture of *L. auratum* is not to give it too much root room, as it will invariably be found that the best plants are those that are somewhat restricted. For single bulbs deep 7-in. pots are quite large enough, and these are useful sizes for general purposes, and come handy for dropping in on greenhouse stages, where a few heads of this magnificent Lily in bloom have a most telling effect. The flowers of the different varieties of *L. lancifolium*, being much smaller, make a better display when several are massed together, and growing several of one kind together in large pots so as to make fine specimens, having from five to ten stems staked properly out. To produce such plants as these it is necessary to select the largest and strongest bulbs to be potted together, that the growth may be uniform. In placing these in the pots they should be distributed regularly, having first laid in a little rough soil over the crocks, and the bulbs being then in the proper position, the next thing is to fill in the spaces between with the same kind of material, using enough to just cover over the tops, so as to leave plenty of room for top dressing. It has been said that stem roots are no help to the plants and should not be encouraged, but Nature never makes mistakes, and it is therefore certain that they would not be there were they not for a purpose which is to help to sustain and carry out the flowers, the massiveness of which shows how much such assistance is needed.

Although Lilies will grow and succeed fairly well in almost any soil, I prefer a mixture of fibrous peat and loam in about equal pro-

portions, which mixture cannot well be used too coarse, as the main roots of Lilies, being large and quill-like, are able to ramify in it in a more easy manner. The practice of using manure for bulbs of this kind in pots is not to be commended, as there is always a risk that it may induce rot, and what assistance they require can always be given in a liquid form, when there are plenty of roots to take it up, and the necessary amount of foliage to turn it to proper account. If the soil at the time of potting is moist and in the condition it should be, no water will be required for some time, and to obviate its being needed to as late a period as possible, the pots should be placed on a damp floor in a cold frame, instead of in positions where they will be exposed to dry currents of air. In the former situation the growth they make is gradual and strong, to prevent the drawing up of which they must have plenty of light by being placed near the glass till the time of year arrives when they will be safe in the open, and a portion for late flowering may be left out in any sheltered part where they can have full sun, and be secure from cold cutting winds. There they can remain snugly till the autumn; when brought into the greenhouse or conservatory they will soon expand their buds, and remain a long time in full beauty. As soon as the blooms fade the plants should be exposed again so as to ensure a thorough ripening, to aid in bringing about which it is important that they then be kept moderately dry at the roots. S. D.

CYTISUS RACEMOSUS IN SMALL POTS.

This fine old greenhouse plant is nowhere seen so well grown, or in such good condition, as in Covent Garden, and that in remarkably small pots. Charming flowered bushes of it, from 18 in. to 2 ft. in height, and as much through, may be seen in pots never larger than 6 in. or 7 in. in diameter, in thousands in Covent Garden in March and April. Owing to its hardy character, it is one of the very best of decorative plants, and therefore it is well suited for all furnishing purposes. Being so hardy, it is also a good plant for the amateur cultivator who has only a limited supply of heating power in his greenhouse, as a slight frost will not injure it. A temperature of about 40° is quite sufficient for it in winter, indeed better than a higher one.

The best time to propagate this plant I have generally found to be the month of September, by which time the summer growth has become moderately firm; if an old rough specimen is available, it



Anthoecis visca A New Holland Shrub.

will, at this season, furnish a good supply of cuttings. These should be taken off, about 1½ in. in length, with a sharp knife. Make a clean cut below the lowest joint and remove the leaves about ½ in. up the stem. The soil used should be half peat and loam, and plenty of silver sand; well drain the pots (6-in. ones are the best), and fill them moderately firm with soil to within ½ in. of the rim; place on this a layer of silver sand, then insert the cuttings moderately thick, and give water with a rosed-pot to settle the sand round them; then place them in a frame in a shady position on a good thick coating of coal ashes. Keep the sashes tolerably close for a time, merely giving a little air every morning to dispel damp. Be sure to pick off all decayed foliage, and keep the sand in the pots just moist. Amateurs will find this *Cytisus* more difficult to strike than *Pelargoniums*, but the pleasure attending success will be proportionately greater.

After the cuttings have been in a few weeks they will, generally speaking, have formed a callus. This can be known by their having the appearance of starting into growth, and when that happens they may be removed to a shelf near the glass in the greenhouse. Be sure the soil in the pots at this stage is not allowed to become dry, for if so, they will certainly die. When rooted pot them off carefully into small thumb pots, using similar mould to that just alluded to, replace them on the greenhouse shelf, and if the pots could be set in a little Cocoa-nut fibre so much the better; or if a pit is available, with means of excluding severe frost, that is the best of all places for them, as they delight in all stages of their existence in

a cool moist atmosphere. When the soil becomes moderately dry give it a good soaking of water, and afterwards keep them through the winter just fairly moist at the root, and that is all. By the month of February the points of the shoots should be pinched out, an operation which will cause them to break out and become bushy. They may now be shifted on into 3-in. pots, and encouraged to grow freely, giving them abundance of air on all favourable occasions.

When the month of May arrives, and all danger from frost is over, repot them into 4-in. or 5-in. pots, according to their strength, using rather more loam than before, and potting firmly; now select a place out-of-doors on which to set them with a good hard bottom, so that worms cannot work into the pots; place the plants thereon in the form of a bed of convenient width for watering, &c. Be sure not to crowd the plants together, but allow sufficient room for sun and air to get freely amongst them. The spaces between the pots should be filled up with coal ashes or Cocoa-nut fibre. This will obviate the excessive use of the watering-pot. A piece of board round the edge of the bed will keep all neatly in their places. As the plants progress in growth, keep them well pinched in, so as to form compact bushes, and in hot weather syringe them freely night and morning, and be sure that they are never dry at the root. This is not a plant that requires much manure, but I have found a little soot-water useful occasionally; it causes the foliage to assume a good dark green colour. By the end of August they should be ready for their final repotting into the pots in which they are to bloom, using sizes not larger than 6 in. or 7 in. About a week after they are potted they should receive their final pinching, as if this operation is deferred to a later date they do not produce such fine flowers in the spring. Keep them out-of-doors until there is danger of their being hurt by frost, and then remove to their winter quarters, which may be either to a pit or to the greenhouse, as may be convenient; if to the latter give them the coldest end.

There will now be little to be done beyond attention to watering and ventilation until the spring, when they may be aided by a little weak manure-water, and freely syringed until the flowers show colour. By the month of March it will be found, if these directions have been adhered to, that the point of every shoot will produce a flower spike, and that the whole plant will shortly be a blaze of golden blossoms, fully rewarding the cultivator for his labour. This plant is not so subject to insects of any kind, and it can be grown to the greatest perfection in a small state without either stake or tie.

HENRY BAILEY.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Siebold's Primrose.—Mr. Gumbleton informs us that this Primrose, commonly and unfortunately called *Primula cortusoides amœna*, is breaking more and more into beautiful varieties. He has about thirty good kinds, lovely plants for pots. Although quite hardy, their flowers often suffer in the open air, and it is not every soil or situation that allows of their fine growth out-of-doors.

Hybrid Ivy-leaved Pelargonium St. George.—This very beautiful variety of hybrid Ivy-leaved Pelargonium was raised by Mr. J. George, of Putney Heath, who is also well known as a raiser of choice novelties of other races of the Pelargonium family. It is, according to the *Florist*, in which there is this month a coloured plate of it, the result of a cross between *P. peltatum elegans* and a zonal variety, and is a most attractive plant, being of free habit, and producing abundantly ample trusses of bright salmon-red flowers. Mr. George states that he has for some years been engaged in attempting to improve the Ivy-leaved Pelargoniums by crossing them with the zonals. In this attempt he has made the Ivy-leaved sorts the seed-bearers, his object being to retain their very distinct habit and to combine therewith the larger trusses and more brilliant colours of the zonals; but he has found the process a slow one, inasmuch as the plants of hybrid race will not perfect their seeds. The hybrid Ivy-leaved Pelargoniums are all of a trailing habit, but some are much stronger growers than others. Thus the varieties called *Nemesis*, *Gem*, and *Argus* are best adapted for vases or basketwork; while *St. George*, *Mrs. J. George*, *Diadem*, and *Progress*, being stronger growers, are best suited for pillar or trellis-work. These hybrids are in every way superior to the true Ivy-leaved types, the colours being so much brighter and more varied, and the trusses very much finer and bolder. Of the distinctness, beauty, and utility of these novel sorts there can be no question.

Browallia elata.—I have grown this plant for some years, and agree with your correspondent (p. 504) that it is a matter of surprise that its value is so little recognised. I sow it in an ordinary greenhouse about March and April, and it germinates quickly without bottom-heat. As soon as the seedlings can be handled, I prick

them off into thumb-pots, and shift afterwards into 5-in. ones. With a little stopping they make compact, bushy plants about 1 ft. high, and bloom most abundantly and continuously. I find that they require plenty of water during the summer months. I have not yet tried them for winter blooming, but I have no doubt they would be a great acquisition late in autumn. The blue variety is the most valuable, and, according to my experience, the most compact in habit; but a bunch of the blue and white mixed makes a charming bouquet and lasts a long time in a cut state.—W. J. T., *Brixton*.

—I have grown both the white and blue varieties of *Browallia* in quantity for several years, and by following as nearly as possible the system of cultivation described (p. 504) by your correspondent, have found them most useful, either for indoor decoration or for furnishing cut flowers, as when grown under glass they are useful in bouquets, forming as they do an excellent substitute for *Forget-me-nots*. I have generally planted some of the surplus stock out-of-doors at bedding-out time, and have found the blue variety to make an effective bed; but the white sort is scarcely white enough in the open air for bedding purposes, but under glass its purity is greatly increased. Both plants are well adapted for amateurs, as they may be grown out-of-doors during summer, and will flower freely in any warm greenhouse when taken indoors in autumn and winter.—J. GROOM.

Gardenias Planted out.—These are planted out near the glass in a warm pit at Goodwood. The result, compared with pot culture, is better health, freer growth, numerous and finer flowers, and leaves that sometimes more resemble those of a *Magnolia* than a *Gardenia*.—V.

Ramondia pyrenaica.—This does remarkably well in the Cambridge Botanic Gardens as a cold greenhouse plant. Growing in a 5 in. pot, it has fine large crowns, and is making offsets. When in flower it must have been extremely handsome, judging from the number of its seed-pods.—L.

Gesneras in Rooms.—These and their allies do not receive their due meed of attention as decorative subjects for rooms, &c. Any one having the advantage of a little warmth can easily grow them into little specimens a foot or eighteen inches high, when they may be removed to an ordinary sitting-room, where they will remain in undiminished beauty for several weeks, even in winter; they will not, however, open their bloom buds. Similarly, *Gloxinias*, with a flower or two open, will, in the summer time, continue to expand blossom after blossom in the drawing-room quite as well as in the stove, and the flowers will last longer in perfection.—GREENWOOD P.M.

Hibiscuses.—I was in error in the statement (p. 486) that *Terminalis elegantissima* of gardens is the juvenile state of *Hibiscus liliiflorus*. What it really is is uncertain, as the flowers are unknown, but my statement was based on an incorrectly named specimen.—W. B. HEMLEY.

Nelumbium speciosum.—I am told that the Chinese grow the rosy-flowered *Nelumbium speciosum* in vases before their temples wherever they may be located in the East. This reminds me that there are two other of these Sacred Lotus plants which may be grown in tubs or tanks in a warm and sheltered part of any English garden during the summer months. These are *N. aspericaule*, a hardier seedling variety of *N. speciosum*, and the "Golden Swamp Lily" (*N. luteum*), of Texas and the Southern States of North America. Lotus pools are a great feature in the landscapes of Japan, as illustrated by a picture in the last Royal Academy exhibition; but by taking advantage of these hardier varieties there is no reason why there should not be Lotus pools in every warm and sunny English garden.—F. W. B.

Eichornia (Pontederia) azurea.—It is very rarely indeed we have to illustrate an aquatic plant of any great beauty, but *Eichornia azurea* is one of the most charming plants which we have ever seen. It was introduced to the Botanic Gardens, Regent's Park, and the whole of this autumn, and until recently, has been one of the most charming plants imaginable. Unlike other plants of the same family, it flowers very freely, the delicate purple spikes rising frequently among the large shining leaves. The shoots run freely over the surface of all the water in a stove tank of the Victoria House. With the exception of the Water Lilies themselves, we know of no more valuable plant; and then, being quite distinct, and a much freer bloomer than the others, it is still more desirable for general culture. Although we saw it in the Victoria House, at Regent's Park, its size is such that it could probably be grown easily in a tank in a warm house. All botanic gardens should possess it. The flowers have a bright little yellow eye, which gives them a pretty aspect when closely examined; but the distant effect is even more remarkable. We hope to give a coloured figure of it soon, and thereby show more effectually what the plant really is.



A Beautiful Stove Water-plant, *Eichornia* (*Pontederia*) *azurea*.

TREES, SHRUBS, AND WOODLANDS.

SHELTERS FROM COLD WINDS.

Cold affects plants much in the same way as it does animals; in the case of both it is not alone the extent of cold as shown by the depression of the thermometer, that is felt, but the unchecked current of wind when there is nothing to break or intercept its force. This people know from personal experience, when exposed in an open situation to a brisk wind, with the thermometer showing say 15° of frost—that amount often feels much colder than when the instrument shows 25°, and it is quite calm. Few who have anything to do with gardening matters are unaware of this, yet both trees and shrubs of a character unable to bear severe cold in exposed situations are often planted there. It generally happens in cold winters that quantities of plants, often highly prized by their owners, are lost from want of a little timely protection being given, that in itself might do little to ward off actual frost, but which would yet save them from death or injury by shielding them from the wind. I am not so much alluding to low growing plants that do not rise much above the ground, as to shrubs and young trees that require something higher to shield them when planted in open places. In the case of young trees in gardens and pleasure grounds that are so circumstanced, it is always labour well spent to do something to give them a little shelter; but in doing this it is well to be careful not to do harm instead of good. I have often seen, when mats insecurely tied to stakes and poles or other materials of a like description were used, that the means intended to protect did more injury than good by chafing against the branches which they were meant to shelter.

I have found light straw shutters well suited to the purpose; they are made by enclosing a thin layer of clean straight Wheat straw, not more than half an inch in thickness, between ordinary large wire Pea hurdles, bound tightly together with wire round the sides and ends, and stitched down the middle to further keep the straw in its place. With me these wire contrivances were of much more real use thus used in winter than ever I found them for supporting the Peas in summer; but if wanted for the latter purpose they can in this way be made to do double duty. A couple of these, or in some cases two and two, one above the other, secured to three stout poles driven well into the ground on the windy side of a shrub or young tree, the ability of which to stand in the position in which it is planted is uncertain, will often make all the difference between injury and escape from the keen frosty winds. The ordinary wattled hurdles used for folding sheep are equally useful employed in the same manner. It is not necessary that this protection should be wind-proof, but simply as a break to stop its coming in force against the plants.

I have heard two objections raised against the use of such means of protection; first, that they are unsightly in a garden, which must be admitted; but it is often simply a choice between tolerating such things in winter, or being without the plants altogether, unless content to put up with them in anything but an inviting state. The second objection is that it is useless resorting to means of this kind to shelter young trees that would soon outgrow any possibility of helping them in this way; but it frequently happens that trees—it is only those that are of an ever-green description that I am including in this kind of treatment—somewhat susceptible to injury from exceptionally severe winters are still more so for a time, from the fact of their growing luxuriantly, as they usually do in good ground for a few years after being planted, whereas after they have stood for awhile, and somewhat exhausted the soil within the immediate reach of their roots, they grow slower, and solidify their wood better, and are then better able to bear cold winds. Means, like those I have mentioned, that cost little in either labour or material, will frequently keep things safe, the loss of or injury to which would cause much disappointment; and after summers such as the one we have passed through, plants, as a rule, are in much worse condition for braving the keen winds of a severe winter.

T. BAINES.

The *Acer Ginnala* of the Amoor country, is a handsome hardy tree, which puts on the richest autumnal tints. In the sunlight the decaying leaves are of a singularly beautiful, glowing, ruby-red. The contrast between the autumnal tints of this species and those of the better-known North American *A. rubrum*, is very marked, the latter displaying but little deep colour, only a leaf or two here and there being partially or nearly entirely crimson, while the prevailing tint is a bright, clear golden-yellow.

A New Ornamental Willow (*Salix vitellina britzensis*) is recommended in the *Hamburger Garten Zeitung*, and, now that the

planting season is approaching, it may be useful to quote the recommendation. This novelty is said to have the bark of the young shoots coloured red, like those of *Cornus alba* (sibirica), and, if so, the plant must afford a fine winter contrast to those of the golden Willow. It is in the hands of M. Späth, of Berlin.—*Florist*.

Scarcity of Berries and other Fruits and Seeds.—A very noticeable feature of the past untoward season is the remarkable scarcity of cones, berries, and other fruits or seeds on most of our hardy trees and shrubs, in almost every part of the country, except in a few isolated localities, chiefly in the north, where there appears to be an exceptionally full crop, especially of Mountain Ash, Hawthorn, and Holly berries. Throughout the southern counties, and as far north as York, a general scarcity prevails, and it is rare to see a tree well laden with fruits of any kind. The Oaks are destitute of Acorns, and the Spanish and Horse Chestnuts are equally barren. The Beech-mast is a poor crop, and generally nothing but husks; Hazel-nuts and Walnuts are more plentiful, but are mostly empty shells. Pines and Firs are generally barren of cones. Yews, Hollies, Thorns, Elder, Mountain Ash, Cotoneaster, Pyracantha, Snowberry, Wild Roses, and such like, are generally seen to be without a berry. With such an early fall of snow as has already visited the country, and the prospect of a severe winter following it, the general scarcity of these fruits will be severely felt by the "sweet songsters of the grove," whose principal store of winter food they usually supply. The general dearth will also considerably affect the supply of healthy and vigorous seeds of the various descriptions of forest trees, as well as of those trees and shrubs of a more ornamental nature; and except in cases of actual necessity, or where the seeds are plentiful and known to be thoroughly matured, it will be better not to save any seeds, for, if they do not prove utterly barren, they are only too likely to produce a weak and sickly progeny. From our correspondents in the north and east of Scotland, we hear that Holly and other berries are very abundant on trees where scarcely a berry of any kind was to be observed last autumn. Whether it was their barrenness last season, or an exceptionally favourable state of weather experienced there this year, that has been the cause of their fertility amidst the general barrenness of the present season, is a matter for careful investigation before any safe deductions can be made from such a remarkable exception. Most of the deciduous forest trees in these localities appear to have shared in the same fertile abundance of fruits or seeds, the Oak alone excepted, upon which there seems to be a universal scarcity of Acorns.—"Journal of Forestry." [In some parts, as in Kent, for instance, most of the smaller-growing Conifers, such as Thuja, Retinosporas, &c., are literally borne down by the weight of their cones.]

An Interesting Hybrid Conifer.—In his private garden at Verrières, M. Henry Vilmorin has, among other choice coniferous trees, an interesting and very handsome hybrid Conifer, obtained from a cross between *Picea Pinsapo* and *P. cephalonica*. We do not remember at the moment which was the seed-bearing parent, but whichever it may have been, a dozen cones were fertilised. Of these only one "set," and in this there was only one fully developed seed which gave birth to the plant in question. The specimen, which measures 8 ft. in height, and as much in diameter of branches near the ground, is thickly furnished, differs from both its parents in the arrangement of its leaves, and promises to make a distinct and noble looking tree.—"Journal of Forestry."

Wall Shrubs.—It is not generally known that the different varieties of variegated *Euonymus* make splendid wall shrubs; they require nailing at first, but ultimately they cling like Ivy, and will withstand the most severe winter in this position. I noticed some the other day planted between Clematises and other showy summer-flowering climbers. The *Euonymus*es (together with *Choisya ternata* and others) gave the wall a bright and cheerful appearance. I am convinced that the *Camellia* might be much more extensively used as a wall shrub than it now is; too often it is tried once, fails, and is not tried again. A lady recently told me that with her it was a much better shrub than the Laurel, and yet before she could get it to thrive she had tried it in every aspect, failing always until she tried it on a north wall, when it soon established itself, and has since given no trouble. While on the subject of covering walls, allow me to protest against the hideous cropping to which Ivy and other wall plants are subjected, and that even in the case of small villa gardens, thereby making them more Box-like, and the outline of their walls more visible and formal. It would be found to greatly improve the effect if a log, a few bricks, or stout sticks were placed here and there at irregular intervals along the tops of the walls to support the climbers, and thus break the straight line that is too often visible. A packet of seed of *Linaria Cymbalaria* (Toad Flax) sprinkled on old walls in spring would prove very satisfactory. The prettiest wall effect which I saw last summer was produced by this plant.—JAMES O'BRIEN.

The Ginkgo (*Salisburia adiantifolia*).—It appears that the males of Ginkgos attain a much larger size than the females; moreover, the males grow straight on and have wide-spread, ascending branches of free and vigorous growth, the female being closer, more compact, and the branches sometimes even pendent. In the garden adjoining the palace of the Grand Duke of Baden, at Karlsruhe, there are two fine specimens of Ginkgo. The exact measure of one is as follows: diameter just above ground, 29 in.; diameter at 3 ft. in height, 25 in.; height of stem up to first branches, 19 ft. 4 in.; total height, 84 ft. It is a very stately specimen. The Ginkgo was introduced in England about 1758.—MAX LEICHTLIN, *Baden-Baden*.

THE IRISH OR CONNEMARA HEATH.

(*MENZIESIA POLIFOLIA* VAR.)

THE flowers of the white varieties of this native plant may be classed amongst the most lovely of all delicate blossoms, and when seen

named *M. polifolia bicolor* is perhaps the most singular of all in its changing variations, which range from pure white to deep purple, through all the intermediate tints of blush-white and pink, while some of the bells are distinctly striped with purple on a white or blush-coloured ground. All these variations may occasionally be found on the same flower-spike, as is shown in the engraving in the upper right-hand figure. Science has as yet taught us little or nothing as to the causes of colour mutations of the type here alluded to, where nature strikes a full chord of colour-music instead of the "harping on one string," which is more familiar to our eyes. In the type *M. polifolia*, and in the pure white forms, the decided colour ruby-purple, or the absence of colour pure white, are characteristics strong enough to bear down and overcome the others. Here, however, in the bicolor form the colours tremble in the balance; none of the tints are able to "kick the beam" either way. F. W. B.

AMERICAN NOTES

Cercidiphyllum japonicum or Kadsura.—I fully believe that this tree will not only prove perfectly hardy in Massachusetts, but will be valuable for shade and also as a source of timber. It is found sparingly in the mountain ranges of Nippon, and abundantly in the forests of Yengo, where its true home appears to be. So far as my observations have extended, it is but rarely found growing on bottom lands, or where there is a large accumulation of moisture, but it delights in the well-drained and gentle slopes of foot hills, along the base of which it forms a narrow belt, its zone of distribution, with reference to altitude, being slight, since it does not appear to thrive on the higher and more completely drained slopes. It is very common in the larger trees for the trunk to divide from two to five times, at a distance of 8 ft. or 10 ft. from the ground. Two trees of very common size were measured at a distance of 3 ft. from the ground, and in each case found to have a circumference of 27 ft. The common height appears to be between 80 ft. and 100 ft. The foliage is small, graceful, and compact, while the tree, as a whole, forms a stately and most beautiful object. The flowers are so inconspicuous as to be of no value for ornamental purposes, while the fruit, consisting of small pods about $\frac{1}{4}$ in. in length, would be no serious objection to the tree as an object of ornament, on account of its diminutive size, while any objection which might arise on this account could be overcome by taking care to select only the staminate trees for planting. Respecting its special value for timber, but little can be said as the result of experimental determination, and the question of durability can only be decided at some future time. The wood is light both in colour and weight, strong and easily worked. The grain is rather close. For fine indoor work and the manufacture of furniture, the Japanese employ it very extensively, while the Ainos consider it one of the best of woods for the construction of "dug-out" canoes, both on account of its lightness and strength, while they can also find an abundance of trees in which the trunk is perfectly straight and free from branches, for a distance of 20 ft. from the ground. It seems quite probable, from the uses made of the wood, that it must be of durable quality and that it will prove a valuable acquisition.

Orchids in the Open Air.—At the October meeting of the Germantown Horticultural Society, two species of *Stanhopea* were exhibited in bloom which had been hanging out in their baskets on the branch of a tree all summer. They were exhibited chiefly to show how easily this class of Orchids could be grown. One plant, *Stanhopea oculata*, had six flowers in its truss. Probably a large number of summer-blooming Orchids could be grown in this way.

Pine-apples.—The Banana has become so popular that the Pine-apple has fallen in proportion. They are not imported now to the extent they once were. The importation of Bananas is enormous.

Propagation of Peach Trees.—We were recently informed of an enterprising nurseryman, who bought at a high figure two plants of a new kind of Peach tree. He has 2000 first-class plants to sell this autumn.

The Phylloxera in California.—This pest is making such inroads among the Vineyards of California, where the European forms of Grapes have hitherto done so well, that the leading Vine-growers are thinking of following the example of France, and of grafting their plants on the native American stock, which has been found to suffer less from the attacks of the little root pest than others.

Picea and Abies.—As already noticed these have been confused. What we know is Abies should be Picea, and what are Piceas should be Abies. The Firs are the Abies and the Spruces Picea. About this Mr. Lemmon has the following in the *Pacific Rural*



The Irish or Connemara Heath (*Menziesia polifolia* var.).

upon the plants, or when cut for use as domestic or personal ornaments they are able to compete successfully with even the most select of tropical flowers. During the past few years, blooms of the white varieties have been welcomed by Covent Garden florists, who make excellent use of them in the arrangement of bouquets; but it is as seen on the dark-leaved little bushes themselves that the spires of snowy bells are most attractive, and a rod or so of these plants 18 in. or 2 ft. apart would be a very serviceable addition to any garden where cut flowers of a choice character are desired, or a few plants might be used as a fringe to beds of *Rhododendrons* and other American plants. Although a peat soil is eminently suitable for these Heaths, nevertheless it is by no means an absolute necessity, as a good fibrous loam meets their requirements nearly as well, and, like most other plants, they evince a preference for pure fresh air. The type (No. 1 in the annexed illustration, the upper figure to the left), as found so abundantly in some parts of the west of Ireland, bears bells of a ruby-purple colour; (No. 2) *M. polifolia* var. *alba*, has snowy-white bells; then of this there is a large and more inflated form (No. 3) known as *alba major* or *globosa*, and the variety (No. 4)

Press :—"Dr. George Englemann, of St. Louis, the closest student of our trees in America, has just published an exhaustive description of the American Firs, in which he says:—"I follow Link in his name, definition, and limitation of the genus *Abies*, which seems to be a very natural one, comprising the Silver and Balsam Firs." The synonym *Picea* is the older name, and enjoys the Linnæan prestige, but is contrary to classical (see Pliny and others) and philological authority. The name *Abies* is generally adopted in Europe, while *Picea*, heretofore principally used in England, is now being abandoned. *Picea* is the Pitch tree, and properly designates the Spruces. Tournefort, the elder De Candolle, Gray, and others comprise under the name *Abies* both the Spruces and Firs; 'but,' Gray declares emphatically that 'the generic distinctions between them are abundant, and based on floral and fruit characters as well as upon the leaf anatomy.' The Spruces may be said to be distinguished from the Firs by their depending cones growing from any of the limbs, with persistent scales and bracts, and, generally, by their scattered limbs and leaves; also by microscopic anatomy, as shown by Englemann. They comprise two genera, *Picea* and *Tsuga* forming the second and third genera of the *Abietina*, differing from each other by but few characters detected at a distance; five species exist in California. Second genus, *Picea*, from *pix*, 'Pitch.' The true Spruce. Leaves four-sided, and generally scattered all round the long twigs, leaving, when they fall, the foot-stalk, persistent, ligneous, and prominent. Bracts concealed beneath the cone-scales."

The Bug Market.—It is said that the entomological cabinet of Mr. Andrew S. Fuller, contains 8000 species of beetles alone. Mr. Fuller estimates that there are over 100,000 species of insects in the United States. A gentleman who visited his collection says: "Here Mr. Fuller sat down at the table and began to write. The reporter was about to leave when the entomologist said 'I have given you the little I know concerning one beetle, but to-day there is not 100 of our North American insects whose true history is well known. There is room for 1000 active young men to distinguish themselves in this direction. The pursuit is most fascinating, and no man who has once entered it will ever wish to turn back. Just to give you an idea. One man visited Florida during the winter and brought back over 1500 new species of bugs. Another man broke down the bug market in one specialty. He found under a dead Palmetto fan hundreds of bugs that were previously rated at seventy-five dollars apiece.'"

Gathering Grapes.—The Californians have invented a ring to be worn on the forefinger of the right hand, to which a little short blade is attached, so that with but one hand the bunch can be at once cut from the Vine.—*Gardener's Monthly*.

The Bleeding Heart.—One of the finest plants for forcing in a house is the Bleeding Heart (*Dicentra spectabilis*). The roots of old plants may be taken up even now. Place them in a cool window or greenhouse, and they will bloom by the first of February, and continue to bloom until May.

New Potato.—A friend has shown us a specimen of a new seedling Potato which is said to be perfect as regards quality, and an abundant yielder. We may say that in appearance it is as shapely as the Snowflake which it somewhat resembles. It has been tested by Dr. Hexamer, who pronounces it the best Potato he has ever seen, which is very high praise. It has thus far been designated only as B.4. We suggest the name when this variety shall be offered for sale—"Before."

Naming Fruits.—Mr. C. W. Garfield, secretary of the Michigan State Pomological Society, writes us the following concerning Kieffer's Hybrid Seedling Pear, and what he says we heartily endorse:—"Without having as yet fruited it, I have one objection to it, and that concerns its name. There is no use in trying to exhaust the description of a fruit by giving it a long time. 'Kieffer' is enough without having to run twice across a written page with the rest of the name. Our society will try and give short names to the fruits which it 'dubs.' For instance, two Strawberries we have named this year, the 'Marvin' and the 'Shirts' are models in brevity of nomenclature."

Curl in the Peach.—Professor Burrill, of Illinois, has recently made a thorough examination of the minute fungus which had long since been known to cause the curl in the leaf of the Peach, and states that the name appropriately given to this fungus is *Ascomyces deformans*. He has traced this fungus to the unopened buds. As the leaf expands it is carried along, and finally produces the well-known deformity. The young bark of a diseased twig is filled with the threads of the fungus, and is sometimes distorted with ridges and swellings and blister-like excrescences. Professor Burrill therefore recommends the pruning away in winter of such twigs as may be found to be thus diseased and committing them to the fire. To this we would add the importance of keeping the trees in a vigorous state of growth, as feeble ones recover less rapidly. The appearance of the curl is usually most conspicuous after a cold

period just after the leaves are expanded, this condition of the weather favouring the development of the fungus.

New York Central Park.—A blacksmith may be a very poor lawyer, and a shoemaker would probably show a want of skill in curing a sick man. In the same way a mere politician would not be expected to make a good landscape gardener. A writer in the *New York Times* points out the disaster which has befallen the Central Park since placed in the hands of party favourites. As examples of neglect, shrubs are untouched and straggle at will; trees are disfigured by trimming up; dead trees are left standing; young trees choked by weeds; rare trees dead from neglect; vistas closed by undue growth; structures decaying; large trees becoming lop-sided, and the whole a cause of sadness to those who remember its inception and early beauty.

New Agricultural Paper.—Mr. E. H. Libby, several years ago founded the *Scientific Farmer*, a monthly published in Boston. Several months ago he relinquished his interest in that journal to his partner, Dr. E. L. Sturtevant, to manage a new weekly which was to have been called *The Country Home*. It was advertised widely, but did not appear, because just at that time Mr. Libby preferred to accept the position of editor-in-chief of the *American Agriculturist*, and *The Country Home* was abandoned. For reasons not known to us, he soon retired from that position, and, after a brief visit to England, has now returned, and the first number of *Land and Home*, an agricultural weekly of which he is the manager, is now before us.

Menzies' Spruce.—Poor *Abies Menziesii*! We had grown to prize its steel-coloured leaves and peculiar looks in connection with *Menzies*. Dr. Englemann says we must drop it. If Colorado *Menziesii*, then we must call it *Picea pungens*; if Pacific *Menziesii*, then we must call it *Picea lichtensis*. The worst of it all is that *Abies* are *Piceas*, and *vice versa*. How scientists do keep things in an uproar!

Beurré d'Anjou Pear.—Marshall P. Wilder thinks the Beurré d'Anjou the best and most profitable very late Pear with which he is acquainted.

A Strawberry-coloured Apple.—We have noticed that several of our exchanges have of late made mention of a red Apple sent to them from somebody in Missouri. It is of medium size; skin straw-coloured, and the flesh is of a beautiful red Strawberry colour all through; rather dry, mealy, and with but little flavour; it is of but little value except as a curiosity. It corresponds in size, taste, and peculiar colour with the Surprise Apple, which is an old and well-known variety, and the probability is that they are identical.—*Rural New Yorker*.

The Pennock Apple.—A writer in the *New York Times* says that large quantities of this Apple (grown probably in New Jersey and Pennsylvania) are sent to the West Indies, where it is the most popular of all our Apples. Steamers frequently take 1000 barrels at a time during autumn. It is also largely quoted in the London market. The *Times* spells the name "Penich," and states correctly that it is a "characterless" Apple, and gives the proper synonym Pelican and the improper one Phoenix, the latter being a distinct sort, smaller, but somewhat resembling the Pennock.

Hardiness of the Pecan.—In answer to a recent inquiry as to the hardiness of the Pecan (*Carya oliviformis*) in Maryland, I can state that this tree is found in the forests of Illinois as far north as 42°, which is near the parallel of Chicago. It abounds on the borders of the Mississippi and Illinois river, and also in the Missouri Valley in the State of that name. The largest and best Nuts, however, come from Arkansas and Texas, and seedlings of these are found quite hardy here, where the mercury sometimes descends to 30° below zero. By selecting the best and largest Nuts for seed, great improvement is made in the size and quality of the Nuts. Bryant, in his "Forest Trees," says of the Pecan:—"No other Nut, native or imported, can be compared with this in flavour. The shell is thin, the kernel destitute of woody partitions, and easily extracted." The tree resembles the common Hickory, and, like that tree, should be transplanted at one year old from the seed. The trees are rather tardy coming into bearing, but are very productive after attaining sufficient age.

Early Freestone Peach.—Nearly all the very early varieties which have been brought before the public within a few years are alike in a strong adhesion of the melting flesh to the stone, and one in which the flesh separates freely from the stone has been sought. The *Canadian Horticulturist* describes a new sort, known as the Early Canada, in which the desirable characteristic is quite distinct. The fruit ripens about August 1, possibly a little after the Amsden, and it is described as of fair size (rather indefinite), bright in colour, of excellent quality, and nearly a perfect Freestone. It is certainly worthy of trial.—*Country Gentleman*.

ANSWERS TO CORRESPONDENTS.

Setting Boilers.—If "W. S." (p. 522) will set his saddle boiler low enough to permit of a gentle ascent from the outflow at the crown of the arch to the highest and most remote point of the flow and return pipes in the house to be heated it will work satisfactorily. A saddle boiler here which heats a plant stove and intermediate house 100 ft. long, is only about 4 ft. below the level of the top of the flow pipe nearly 100 ft. off, and about half that depth is taken up with the necessary elbows and branches near the boiler, otherwise the latter might have been at 1 ft. or 18 in. higher, or about 2½ ft. below the highest and farthest point of the flow pipe. The boiler thus set works admirably and gives no trouble, and several other boilers of different shapes are set about as near their work, and have been in use for many years. In the house in question the flow pipe has a rise of about 1 ft. or 15 in. in 100 ft.—J. S. W.

Anacharis Alsinistrum.—If "A. K." (p. 522) were a fellow of the Royal Botanic Society he would read in the report just issued the following:—"It is a remarkable fact that the American Water Weed (*Anacharis Alsinistrum*), which completely filled out not only the lake in the Society's Garden, but rivers, ponds, and other pieces of water throughout the county, and threatened to impede canal navigation, has lately become less troublesome. Since a pair of swans have been kept in our lake not the smallest patches of the weed have reappeared, and in other localities, where it was as great a pest as with us, it is no longer to be seen, and I have even found some difficulty in obtaining specimens."

Blue-flowered Greenhouse Plants.—"A. K." asks (p. 522) "What are the really best blue flowers for cultivation in a small warm greenhouse?" Has he tried *Ageratums*? We find them extremely useful, and the colour is unobtainable in any other plant during the winter months. Any variety of the Imperial Dwarf type is suitable for pot culture, but the favourite here is *Lady Jane*. To obtain a stock of this or of any other new variety, we sow in heat in the spring, and grow the young plants on for bedding out purposes. Some are planted in a mixed border, and the best of these—selecting those of good habit, and which are also likely to continue blooming for some time—are lifted with a good ball, and potted into 8-in. pots. If liberal treatment is given, they will flower freely during the winter, and in the spring will yield a quantity of good cuttings, from which we raise our stock for bedding out. We prefer this practice to raising them from seed, on account of seedlings generally varying in habit. We also treat *Lobelias* of the speciosa type in the same way as the *Ageratums*, and they seldom fail to give a good and continual supply of bloom, which brightens up the front row of plants in a warm greenhouse. Both *Ageratums* and *Lobelias* are in some places grown on in pots for winter work, and they well repay the trouble taken. If this plan is adopted, they ought not to be started too early in the season, nor be allowed to exhaust themselves by flowering during the summer. Both are gross feeders, and should be treated accordingly, i.e., should be grown in good rich soil, and receive plenty of liquid manure.—W. T. O.

The best and most useful blue flowers that can be had at this season for the embellishment of a warm greenhouse are those of *Browallia elata* and *B. Roezli*, both of which bloom profusely and afford choice sprays for bouquets, a use for which they are specially adapted, being small and of that character as to add a finish more telling and unique than could be attained by the employment of anything else, excepting, perhaps, a few sprigs of *Forget-me-not*, which are not to be had at this season. Here we grow them largely for cutting, and when kept in a cool stove it is surprising what a quantity of flower may be had from a few plants, as, after having their heads or main branches removed, they break again from quite the old stumps, the young shoots from which come crowded with blossoms. To have them good at this time of year, the seed should be sown in August, and the plants grown on in frames with plenty of air till the middle of October, when they require a warmer situation. We grow three together, placed triangularly, in 7-in. pots, in which way they make fine masses, and are more effective than they are when kept singly, as, being of spare, fragile habit, one alone looks thin and poor. Those who have not the good fortune to have some of these *Browallias* now, will find that by sowing at once in heat and growing the plants on in a temperature of 55° to 60°, they may have a fine display of them in April or May, a time when they will be most acceptable, and from whence they will last on for months in full beauty. The soil they delight in is a light, rich open one, such as about half loam and leaf mould, with a sprinkling of rotten manure, in which mixture they grow rapidly and maintain a healthy green colour.—S. D.

Slugs and Lapagerias.—If "T. C. A." (p. 522) will place a common lamp glass or funnel over the young shoots of his *Lapagerias* that spring from the root he will save them from slugs, which are fond of them. Woodlice should not be found in a soil and temperature suitable for the *Lapageria*, which prefers a moist and cool atmosphere.—J. S. W.

Lapageria shoots burying themselves in is in a measure no doubt caused by the shoots meeting with some obstruction in their upward course, most probably arising from the hardness of the soil on the surface, and the plants being unable to push through, naturally travel on further in their endeavour to find an opening. The tendency of *Lapagerias*, too, is to extend themselves by means of these underground shoots, which, even in a moderately loose border, often make their appearance far from the base, and put forth their heads where least expected. Long as I have had to do with *Lapagerias*, however, I have never known them to strike down towards the drainage, and I think if examined closely they will be found to be roots and not shoots that are making in that direction. The two are so much alike at first sight that it is an easy matter to be mistaken with regard to them, the first-named being very large and fleshy, resembling in that respect, those of *Asparagus*. If the wall surface which forms the boundary of the border is rough, as appears the case, the best remedy is to coat it over with a mixture of cement and mortar, which will set hard and smooth, and therefore when the points of the young shoots touch it they will meet with no obstruction, but work their way up the sides till they emerge and find light. Not only are slugs and woodlice very fond of the tender young shoots of the *Lapageria*, but worms eat their way into them likewise, and from the depth at which those mentioned by "T. C. A." are injured, it seems pretty certain that these pests are to blame for the mischief. Woodlice would nip them off at the surface, as would also slugs, to prevent the ravages of which it is a good plan to cover each young shoot when it makes its appearance with a lamp chimney till the young succulent end gets out of their reach. Meantime, the predators should be trapped by the use of *Lettuce* leaves, or any other bait ready to hand. The best for woodlice is boiled *Potatoes*, placed in small flower-pots, with a wisp of loose hay on the top of it, so as to make a snug retreat while at their repast, and afford cover to hide.—S. D.

Schizostylis coccinea.—B.—No doubt your plants were weakened by being divided last year; but if not checked in their growth they will soon re-establish themselves and flower well next year.

Asparagus Beds.—Would ashes (burnt clay) do good put on *Asparagus* beds? and, if so, should they be applied now with the manure or in spring? Also, should salt be used now or in spring?—SUBSCRIBER. [Ashes from burnt clay or from any vegetable substance, or the two mixed, do good on *Asparagus* beds. Pass them through a sieve, and spread them on the beds just previous to the spring dressing, when they should be lightly forked in to mix them with the soil. They will open up the surface, let in the sun's warmth, and otherwise be beneficial. Salt is best used now with the manure; the dressing must not exceed 1 lb. to the square yard; in some cases less will suffice.—E. H.]

Cutting Down Dracenas.—Subscriber.—The operation had better be left until spring, when it may be successfully carried out.—G.

Epiphyllums.—Amateur.—The stock you mention we think will be unsuitable for the purpose. *Epiphyllums* are usually grafted on *Pereskia aculeata*.

Names of Plants.—H. F.—1, *Aspidium capense*; 2, *Asplenium lineatum bipinnatifidum*; 3, *Pteris longifolia*; 4, *Blechnum occidentale*.—J. E.—1, *Paspalum corulea-racemosa*; 2, We cannot name number 2 without flowers.—M. T. W.—1, *Erica hyemalis*; 2, *E. mammosa*; 3, *Justicia speciosa*.—R. D.—1, *Salvia splendens*.—Enquirer.—1, *Nerine flexuosa*; 2, *Epidendrum ciliare*; 3, apparently *Oncidium aureum*; 4, *Brassia verrucosa*.—A. B. C.—A fine form of *Lapageria rosea*.—W. B.—The seeds sent are those of *Heracleum giganteum*.—T. E.—1, *Pellaea falcata*; 2, *Blechnum occidentale*; 3, *Aspidium acrostichoides*.—M.—We cannot recognise the climbing plant you send from such a scrap.—Dorset.—1, *Lasiandra macrantha*; 2, *Pteroma elcans*; 3, *Begonia odorata*; 4, *B. fuchsoides*; 5, *B. Rex*, var.—R. M. S.—Plants cannot be named accurately from leaves only.—Subscriber.—*Calceolaria glutinosa*.—J. L. O.—The Calvary Clover is no doubt *Medicago Echinus*.

Names of Fruits.—R. J.—Apple—1, Golden Pippin; 2, Ribston Pippin; 3, apparently Northern Greening; 4, Cellini.—S. M.—The Pear you send is Doyenné du Comice.

Books.—J. W. S.—Apply to Messrs. Reeve & Co., Henrietta Street, Covent Garden.—A. D.—The treatment of *Crotons* is given in vol. ii. of Williams' "Choice Stove and Greenhouse Plants."

QUESTIONS.

Oil Stoves and Glass Roofs.—I have had one of Lynch White's tubular boilers in constant use over fourteen years, and its work has been perfectly satisfactory; but the present severe weather makes one feel anxious in case a breakdown should happen. Would a few heating oil stoves be useful if an accident were to occur? I find some difficulty in keeping up the temperature in some houses I have had roofed without putty, the glass being bolted together and fastened to purlines with copper wire clips; it makes a difference of 5° or 10° as compared with roofs made with puttied sashes. I should be glad to know whether this is usual.—AMATEUR.

THE LIBRARY.

We have received "Alpine Plants, painted from Nature," by Joseph Sebott, and edited by A. W. Bennett, F.L.S. (Swann, Sonnenschein, and Allen). This is one of those books devoted to Alpine flowers, which appear from time to time on the Continent, and which show the flowers in the skimpiest way possible, the poor little plants sticking up in the middle of the page as prim as pins, and often badly selected as to kinds. Of course we know *Arnica montana* is an Alpine plant, but at the same time it is like so many ragged weeds; and the *Centaurea montana* is another gem that might well have been left out; also the common Monkshood, and the still coarser yellow Monkshood, which grows about 8 ft. high when it gets a chance. It is all very well to say they are Alpine plants. Though they are mountain and sub-Alpine plants, we never saw such tall subjects associated with the very high vegetation in Alpine places. The printing is, however, clean and good, though hard in colour. As to the drawing, which is said to be by a distinguished man, it seems to be in no way different from the usual botanical drawings, which are of a very much lower order of merit than the horticultural public are generally aware of. The letterpress is of the usual pedantic description, beginning with "leaves lanceolate elliptic lanceolate," &c., and so on without mercy. V.

BOOKS RECEIVED.

Long Life and How to Reach It. By Joseph G. Richardson M.D. Philadelphia: Lindsay & Blakeston, 1879.

Hearing and How to Keep It. By Charles H. Burrett, M.D. Philadelphia: Lindsay & Blakeston, 1879.

Greenhouse Management for Amateurs. By W. J. May. The Bazaar Office, 170, Strand W.C.

The Hardy Fruit Book. By D. T. Fish. The Country Office, 170, Strand, W.C.

Life of Erasmus Darwin. By Ernst Krause. London: John Murray, Albemarle Street.

Illustrations of the British Flora. Drawings by W. H. Fitch, F.L.S., and W. G. Smith, F.L.S. London: L. Reeve & Co., 5, Henrietta Street, Covent Garden.

The Pear (illustrated). By D. T. Fish. The Bazaar Office, 170, Strand, W.C.

Show Potatoes.—Mr. Peter McKinlay's exhibition of these at the Agricultural Hall is worth going a long way to see. Amongst them are *Magnum Bonum*, *Woodstock* and *International Kidneys*, *Triumph*, *Trophy*, and others, all picked tubers of unusual excellence. They were stated to have been manured with Amies' Potato Manure, of which Mr. McKinlay speaks in high terms.

THE CLIMATE OF THE RIVIERA.

A DEVONSHIRE correspondent says: "Your account of the climate of the South of France, which appeared in *THE GARDEN* (p. 499), is very different from that published in the *Exeter Gazette*. My own strong feeling is that on the whole—making a just balance of all the advantages and disadvantages, there is no place in the world superior to Devonshire, especially the South of Devon. The following is the account above alluded to:—

"From the Riviera.—It was on a Novemberish day, towards the end of October, that I paid a visit to a London physician, who had been putting me through a course of treatment which had not proved quite successful, and my spirits took their hue from the dull yellow haze that obscured the vistas of Hyde Park. 'Go to the Riviera,' said the good doctor, after we had exchanged mutual grumbings about the north-east wind and depressing atmosphere. 'There you will find a blue sky, a bluer sea, clear air, and glowing sunshine, and be able to be out of doors all the day long. Try San Remo first, for there you will sleep better, and afterwards go to Cannes or Nice, where the air is more exciting, and where there will be always something going on to interest and amuse.' This advice, though it came from a matter-of-fact German, was given with an Italian fervour that was irresistible. For three weeks I have been in the Riviera, and am now (1st December) at Bordighera. During the past fortnight I have experienced little else than wet weather, and have seen little of that glowing sun which was to invigorate and cheer me. For 36 hours up to this morning it has rained incessantly; and to-day, to vary the monotony, snow has fallen heavily, misty vapour veils the mountains from sight, and there are some 2-in. of snow on the ground, with much more to follow, if one may judge from the leaden colour of the sky and the keenness of the north-east wind that blows from the Alpine range. Unskilled in meteorological observations, I have been trying to glean information and hope from the weatherwise as to the prospects of the days to come. 'Mine host' declares that he has not seen such a downfall for ten years past, and seems to think that there is something dreadfully wrong in the weather arrangements somewhere, more particularly on account of news received from Milan that there have been greater snowstorms there than have been known for three centuries. The English doctor, who makes Bordighera his winter residence, looks seriously at the falling flakes, tells the company round him that the thermometer stands at the almost unprecedented point of one degree below freezing, and if it only goes 2° lower the Lemon crop will be imperilled, and dreadful damage done to vegetation generally. 'Why, it's a regular English winter!' say the English folk, who have come out like myself to see the earth bathed in sunlight, instead of covered with a mantle of snow; and they ask anxiously, 'When will it clear up?' The answer is not encouraging. It is to this effect: 'We usually have our rainy season in the Riviera in October, but this year it did not come at its appointed time, so that the Orange crop nearly failed from the drought. It has come now, and usually lasts three weeks.' To dissipate the blank looks which this announcement brings forth, the searchers after fine weather are further told that there will not be continuous snow or rain, but intervals of sunny days and laughing skies. As we have had a fortnight of changeable weather, hope is expressed that there is not much more to come. It was a wet season last winter, and two wet seasons in succession are considered to be scarcely probable. Visitors to the smaller towns of the Riviera are hard put to it at such a time as this how to pass the hours pleasantly, for when the sunny day interval arrives, the muddy roads and stony mountain paths are almost impracticable for pedestrians, so that the lovely walks with which the neighbourhood is said to abound can only be thought of, not undertaken. So to fill up an hour or two one feels inclined to inflict upon one's friends in Devonshire a few jottings anent one's journey to the Riviera and sojourn within its confines."

Severity of the Weather.—Accounts of this continue to reach us. Mr. James Backhouse, writing from West Bank, York, says: "On the night of the 6th inst., my four thermometers indicated respectively 4°, 4°, 6°, 6½°. The two former were partially influenced by the proximity of buildings; the others, in the open, were 200 yards apart, the last-named being 20 ft. below the preceding in position. This is the greatest cold here since Christmas Eve, 1860. The temperature continued below zero from about 9.30 p.m., on Saturday (when it registered 2°) till after sunrise yesterday morning. About 3 p.m. yesterday, (Dec. 8), a broad halo with prismatic colours encircled the sun."

—From Culford, Bury St. Edmunds, Mr. Grieve writes: "The maximum temperature has not exceeded 30° since the 1st inst. A considerable fall of snow occurred on the 5th; on the 6th the highest temperature was only 23°, and the lowest 1°, at an altitude of 4 ft., while a similar thermometer placed upon

the surface of the snow fell to 6° below zero. This is the lowest temperature experienced here since December 24, 1870.

—At Clumber the greatest amount of frost was experienced on the 7th, when the thermometer fell to 1° below zero. Many common Laurels are killed to the ground.

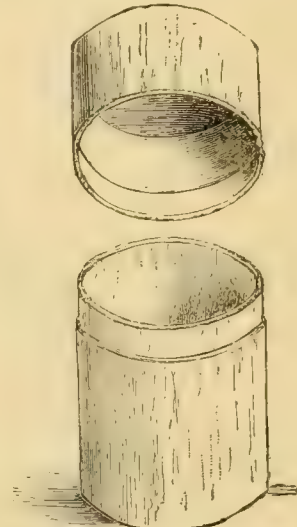
—Mr. Laxton says the lowest temperature registered at Bedford either this year or last was zero during the night of Saturday last, the 6th inst. Snow fell to the depth of 4 in. on the 5th. White Turnips seem injured, also Tea Roses where unprotected; autumn Cauliflowers and Broccoli are quite killed.

—At Bloxholm Hall, Sleaford, the thermometer fell on two occasions below zero, viz., on the 2nd 3° below zero, and on the 7th 6° below zero. A heavy fall of snow occurred on the 1st, also on the 5th, when 8½ in. fell. Laurustinus, Aucubas, common Laurels, and Portugal Laurels are killed to the ground.

—At Sandbeck Park, Rotherham, the thermometer on the 7th fell to zero.

—There were 25° of frost at Goodwood last Saturday night—the hardest frost that has been recorded there for a good many years.

Transmitting Plants.—The accompanying sketch represents the kind of box used by Messrs. Woolson & Co., of New Jersey, for transmitting bulbs of choice plants to this country. In such boxes we received the plants from that firm to which allusion is made in



Box for the transmission of Bulbs.

THE GARDEN (p. 471). As previously stated, they arrived in excellent condition, the majority of them emitting young leaves as well as tender rootlets into the dry soil in which they were packed—sufficient proof that this mode of exporting small samples of bulbs is a capital one, and one that can be safely resorted to. The size of the boxes varied from 3 in. to 6 in. in length, with a proportionate diameter.

Messrs. Webb & Sons' Root Show.—Some magnificent Mangolds and Swedes were shown the other day by this firm; also some very fine Potatoes, including Webbs' Improved Schoolmaster and Webbs' Improved Magnum Bonum, the best apparently amongst some 500 kinds. Excellent Onions, Carrots, and other vegetables assisted in making the Wordsley stand complete. We noticed that no less than sixteen first and second prizes, in addition to several high commendations, were awarded to roots shown by this firm, a convincing proof of their superiority.

OBITUARY.

JOHN THOMAS WILLMER, for forty years proprietor of the Sanbury nursery, died on the 20th ult. at the advanced age of ninety-three. He was an enthusiastic florist, and did much in his time to promote the advancement of floriculture. He was the raiser of many new varieties in Dahlias, Tulips, Auriculas, Carnations, Picotees, and Pinks, for which during his career he won at various exhibitions nearly four hundred prizes in plate and money. He was also one of the founders of the Gardener's Royal Benevolent Institution.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES OF THE WEEK.

Lily of the Valley.—One of the prettiest sights that we have seen of late is a houseful of forced Lily of the Valley, in various stages of flowering, in Messrs. Veitch's nursery at Chelsea. Though the present date is somewhat early for their production, there was a fine batch in flowering condition two or three weeks ago. They are forced with great care; and a house is devoted to the purpose where abundance of moist heat, both at top and bottom, is available. Of course, later on, flowers may be produced with less heat, and the crowns also need not be so carefully selected for the purpose.

Dahlia Maximiliana.—This beautiful and rare species has been flowered and exhibited probably for the first time in Europe by Mr. Green, gardener to Sir G. Macleay, Pendell Court, Bletchingley. The plant is somewhat of the habit of *D. imperialis*, and like it growing from 8 ft. to 10 ft. in height before it flowers, but the leaflets are differently arranged. The flowers are also very dissimilar, as they more resemble in form those of *D. coccinea*, but the colour of the oblong ray florets is a pleasing deep mauve, and those of the centre a bright yellow.

Antignion guatemalensis.—We have received from Mr. F. Nevill Reid, of Ravello, Italy, flowers of this very beautiful Polygonaceous plant, which had been sent to him from India. It is a sub-shrubby climbing plant with slender branches and heart-shaped leaves. The flowers are about 1 in. across, and are of a bright rosy hue, disposed in numerous pendulous racemes. *A. leptopus* which is not unfrequently met with in gardens, is equally beautiful, but unfortunately it seldom flowers, and, consequently, it is almost worthless. The Guatemalan species is no doubt more floriferous, and would be well deserving of introduction.

The White-flowered Lælia anceps.—Some flowers of this lovely new Orchid will shortly be expanded in Mr. Bull's nursery, and no doubt Orchid lovers will be pleased to see it. Beautiful as is the typical kind, and also the exquisite Dawson's variety, this, in its purity and chasteness, quite surpasses them, and stands unrivalled as a pure white-flowered Orchid, though the white-flowered *Lycaste Skinneri*, mentioned last week, is a fit companion for it.

Salvia Pitcheri.—The dearth of blue flowers during winter is so general that any plant producing them at this season is doubly valuable, and the kind under notice, of which cut blooms bearing this name were brought by Mr. Cannell, of Swanley, to the meeting at South Kensington on Tuesday last, is one of the prettiest that could be used for winter decoration. The flowers are about the size and form of those of an ordinary bedding *Lobelia*, and are of a rich azurean hue, clustered upon a long stalk, forming a head from 2 in. to 4 in. long, which renders them very serviceable for bouquets, &c. Other species similar and nearly allied to this one are *S. azurea* and *S. angustifolia*, and, all being natives of Mexico or of the Southern States of North America, are therefore quite amenable to greenhouse culture, or indeed may be grown in the open borders during summer, and lifted and potted in autumn for winter flowering.

Fritillaria Karelina.—This pretty bulbous plant is now flowering in Mr. Ware's nursery at Tottenham. It grows from 4 in. to 5 in. high, with two or three stem-clasping broad leaves, and a terminal raceme of slightly-drooping bell-like flowers, which are about 1 in. across, pale purple, with darker veins and a few darker spots, with a distinct yellowish-green pit at the base of each reflexed segment. In general appearance it is quite unlike any of the ordinary kinds of *Fritillaria*, and it has been regarded by some as a species of *Rhinopetalum*. It is a native of Central Asia, and flowers in late autumn or early winter; therefore, it is a valuable and interesting plant for a winter-flowering collection of outdoor plants.

Candollea cuneiformis.—Of this uncommon New Holland shrub we have received some flowering sprays from Mr. W. E. Gumbleton's garden, Belgrove, near Queenstown. The bright canary-yellow flowers, about 1 in. across, and the deep green foliage, render it a very pretty and desirable greenhouse shrub, though, unfortunately, it is unsuitable for cutting on account of its almost stalkless flowers.

Luculia gratissima.—It is seldom that this charming Nepalese shrub is seen in flower in so small a state as may now be found in large quantities at Mr. Williams' nursery at Upper Hol-

loway. The plants range from 1 ft. to 18 in. high, and each stem is terminated by a large head of rosy, deliciously-scented blossoms, the appearance of which may not be inaptly compared with plants of *Hydrangea*. Such a sight as this at once suggests the question, Why is it not more valued as a winter decorative plant? Certainly it is not owing to its being difficult to manage, for in a warm greenhouse it is a very free-growing subject, and also very floriferous; it soon forms a handsome specimen. But perhaps the difficulty attending its propagation somewhat detracts from its being more generally grown.

The Ivory-flowered Angraecum (A. eburneum).—A remarkably fine specimen of this Orchid is now in flower in the Kew collection. The "break" is furnished with thirty leaves, and has six flower spikes upwards of 2 ft. long, each bearing a dozen or more flowers, the pure ivory white lips of which produce a fine effect, and render it a valuable decorative plant. There are also several beautiful species in flower just now, including a fine example of the rarely-to-be-met-with African *Ansellia*, bearing three large panicles of quaintly-spotted flowers.

Dombeya Burgessiae.—This is a very handsome Sterculiaceoous shrub or small tree, which may be seen in flower in the Palm House at Kew. It has handsome foliage similar to that of the well-known *Sparmannia africana*. The flowers are produced in clusters, and are cup-shaped, with a tassel-like tuft of stamens in the centre, including a few sterile strap-shaped ones. The colour is white, with a conspicuous central blotch of deep carmine with delicate radiating pencillings. It is a native of Natal and Zululand, and requires a stove or warm greenhouse temperature.

Senecio pulcher in the Greenhouse.—Mr. Burbidge lifted a plant of this which he did not like to see punished with the hard weather when it seemed to long to flower vigorously. Potted carefully, and placed in a warm house, it is flowering beautifully, and will continue to do so till after Christmas, proving, thus treated, a most valuable and novel flower for the greenhouse. The fact will, no doubt, be taken advantage of by those who provide flowers for that season. It would be very easy to grow a batch of plants so that they could be transferred to the house just in time to give a good bloom before and about Christmas.

The Champion Potato.—The *Daily Chronicle* reports that the Marquis of Lansdown, who is the owner of property near Kenmare, County Kerry, has sent 175 tons of the Champion Seed Potato to be distributed among his poorer tenantry for planting next crop.

The Winter Coral Berry (Rivina lævis).—This neat little stove shrub is at present bearing racemes of scarlet berries profusely; at all times of the year it produces its flowers and fruit, but more so in winter than at any other season. The individual berries are not more than half the size of those of the Red Currant, but their abundance makes up for deficiency in size, and, being most plentiful when scarlet berries are in greatest request, it would be an acquisition to those having to provide them. It may be increased rapidly by means of seeds, but the young plants require frequent stoppings when young, on account of their tendency to straggle. This and the other species are finely in berry in the Palm House at Kew.

The Weather at Vienna.—During the last three weeks the temperature has been about zero (Fahr.), and we have had frequent snowstorms. Yesterday (Dec. 8) the thermometer registered 9° below zero, and the cold, to all appearance, promises to continue. I am afraid that many of our choicer Conifers will suffer. Amongst others we have planted out Cedars of Lebanon, Wellingtonias, *Picea Pinsapo*, *P. Nordmanniana*, *Thuja gigantea*, and *Thujopsis dolabrata*, which have as yet sustained but slight damage. All kinds of outdoor work are now suspended, as the soil is frozen nearly a foot deep. This morning (Dec. 9) the thermometer indicated 13° below zero.—L. KROPATSCH, *Laxenburg*.

National Auricula, Picotee, and Carnation Societies.—At the annual meeting of these societies, which was held on Tuesday last, in the Council-room in the Royal Horticultural Society's Garden, at South Kensington, the dates of the exhibitions for the ensuing year were fixed; that of the Auricula Society is April 20, and that of the Carnation and Picotee Society July 27. The schedule, we understand, will be the same as that of last year, with the addition that prizes will be offered for seedlings in every class of both societies, and also for distinct species of the genus *Primula*. It was shown that the funds of these societies were in a flourishing condition, the balance in the hands of the treasurer being upwards of £33.

OUR readers will greatly oblige the Editor by sending any sketches of objects which would be interesting or instructive to engrave, particularly views of beautiful plants, trees, or good landscape gardening, or picturesque effects in planting or grouping.

THE INDOOR GARDEN.

FILMY FERNS.

THE account given in THE GARDEN, at page 579, of Mr. Cooper Forster's collection of these is most interesting. Many seem to imagine that they are difficult to grow. In reality no class of plants is more easily grown, provided always that the necessary moisture and shade are given. A sunk frame suits them admirably, protected with mats in frosty weather, although I believe many of the species will stand a touch of frost. In my filmy house there is no heat except what is borrowed from an adjoining stove. In this house there are about two dozen species of Hymenophyllum and Trichomanes. Among them are large plants of Trichomanes reniforme, very vigorous and showing signs of fruiting; *T. trichodeum*, a large and vigorous plant on a block as imported; *H. demissum*, several plants, one very large; *T. alabamense*, new to cultivation; *T. Petersii*, *T. venosum*, &c. The walls are lined with Sphagnum, which serves to keep the house moist, and on it are hundreds of self-sown Todeas. The principal reason probably why this most interesting class is not more grown is the high price of plants at the few nurseries where they are to be had. Were the demand greater, perhaps the prices would be reduced, but until this is so it is worth while to import. Any one who has friends abroad, not necessarily botanical, might have living plants sent him at a trifling cost per post. I have received them in this way from New Zealand, and they are now growing vigorously. A slice of the bark or other substance on which the Ferns are growing should always be taken that the roots may not be disturbed. Put up in a small box with a little damp Moss, and enclosed in oil skin on india-rubber sheeting, they will keep fresh a considerable time. India-rubber sheeting only weighs $\frac{1}{2}$ oz. per square foot, and can be had from any druggist. Were prizes offered at some of the principal flower shows for Trichomanes and Hymenophyllums, probably it would have the effect of inducing their cultivation more generally. What more beautiful objects could there be for cases or bell-glasses in dwelling houses, instead of the miserable sickly Adiantums and other similar Ferns struggling for existence that one so often sees? Filmy Ferns would give infinitely less trouble, and instead of being a worry, as is too often the case, would prove a source of continual pleasure. Gas gets the blame of spoiling Ferns in rooms, but with closed cases of Filmy Ferns it has no bad effect.

Rockville, Murrayfield, Edinburgh.

P. NEILL FRASER.

ADIANTUM FARLEYENSE.

Few plants have attained a more deserved or wider popularity than this beautiful variety of Maiden-hair Fern. Like most other plants it had to pass through the trying ordeal that most new or rare plants do, viz., being overdone with kindness when first introduced by being grown generally in too high a temperature and in too light a soil, which, by the way, is a common error in the case of many other Ferns; for I have no hesitation in saying that since we have substituted a compost of nearly all turfy loam and sand for one formed principally of peat, and reduced our night temperature to that of a warm greenhouse, or to a minimum of 55° in winter, and 65° in summer, we have much finer plants in one year than we used to get in two seasons' growth. At present we have some fair sized specimens of it in 8 in. and 10 in. pots that were only taken off in the form of single crowns with one leaf attached to them last spring, for, when robustly-grown they form such large fronds that it does not take many to form a large plant. When fully grown they need support, as the weight of the leaf is too great for the leaf-stalk, and for this reason large plants of *A. Farleyense* will never be so generally useful as the smaller-leaved section of the Adiantums; but as specimen plants for exhibition, or for indoor decoration, when large single vase plants are required, there are very few plants that can surpass well-grown specimens of this noble Fern. It is readily increased by division, and being a free and continuous grower, large specimens of it may be secured in a limited time. It delights in abundance of moisture at the root, good drainage, and a moderately moist but not over-exciting atmosphere. Its highest beauty is attained when a large crown of young fronds is thrown well above the older ones, just as they have assumed that rich sunny tint so peculiar to the transition state, to the deep green of the fully-matured leaves. *A. Farleyense* is well worthy of a foremost place wherever Ferns are grown or leaf beauty appreciated, as it is always an agreeable subject for mixing with flowering plants, and at this comparatively dull season of the year a few plants of it do good service if mingled freely with *Calanthes* and other beautiful flowering plants that are greatly benefited by the addition of the highly-ornamental foliage of this and other plants of a similar character.

Linton.

J. GROOM.

TRAINING CHRYSANTHEMUMS.

Now, when the Chrysanthemum shows are over for this season, it may not be out of place to enquire if some modification of the existing style of training would not be of benefit both to the growers and to the plants; for I never yet met with a grower who followed the stiff and unnatural mode of training now generally practised from any idea that he was improving the appearance of his plants, but simply because if he competed for the prizes offered at Chrysanthemum exhibitions he must make his plants submit to a system of training which was for the time being the fashion. Under such conditions the Chrysanthemum shows but a fractional part of its beauty. I have lately seen a good many Chrysanthemums trained in the form of standards with clear stems a yard high, and on the top of the hedge stake that supported the stem, which from its style of training was unable to stand alone, was an inverted cup-shaped wire trellis, on which the shoots were as tightly tied down as a prisoner to a rack. For the amount of labour that is expended on these monstrosities the arbitrary rules of societies are chiefly to blame. The training in question effectually destroys all claim which the Chrysanthemum has to rank as a decorative plant, and as to supplying cut flowers no one would expect to cut them so good from a trained as from an untrained plant; for the pinching, stopping, tying, and twisting to which the shoots are subjected all militate against the production of perfect flowers. A Chrysanthemum bush growing in the open air with just support enough to guard it against wind-breakage, is really when in flower a striking object; and when grown in pots under the protection of a glass roof, it does much to enliven our conservatories and cool houses in autumn and early winter, and the less staking and tying it gets the better. What some straggling growing kinds require to keep them erect should be given them early in the season, so that they may outgrow all signs of formal training before they are in flower, and nearly all the small flowered sorts look best without any training at all. But to tie foliage, flowers, and all down to a flat uniform level, and to expect a satisfactory result, is an impossibility. Chrysanthemum societies should obliterate all rules as to how the plants are to be fashioned, and merely offer prizes for the most effective plants or groups of plants.

Linton.

J. GROOM.

Standard Plants.—The objections to these raised by "J. G. L." (p. 505) seem to me to be altogether fallacious. The very object and purpose of these standard Ivy-leaf, Cape, and other Pelargoniums, Fuchsias, &c., is to obviate the flatness incidental to plants of even height in houses. If standards are intermixed with these the very best effect is produced. The objection to bare stems is removed if the plants are intermixed with others; but it should be specially pointed out that one object in recommending the growth of certain plants as standards is to enable them to display their natural drooping or pendent habit of growth to advantage; and when this is done the bare stems are hidden. What can be more unnatural than to see the charming Ivy-leaf Pelargoniums exhibited as pot specimen plants tied up in pyramidal form? The charm incidental to the drooping habit is lost, and natural growth is inverted. Worked on 2-ft. stems, as advised, their shoots would hang down in elegant profusion, and all tying might be dispensed with. What plant makes a more graceful standard than the Fuchsia? and when its robust, pendent growth, full of bloom, is permitted to hang down naturally all round the stem, the latter does not present an objectionable feature. The bare stem might be regarded by "J. G. L." as undesirable in the Princess of Wales Capsicum, or in some forms of the berried Solanums; but surely such an objection would be exceedingly limited. Most persons are only too pleased to get small standard berried plants to be concerned about the stems; and the same remark applies equally to larger standard plants.—A. D.

External Coverings for Heated Houses.—During the late severe frosts we have tried external coverings when much fire heat would have been injurious to the plants inside, and it is surprising what a difference even a thin covering like that of tiffany, or ordinary shading material, makes in keeping the cold from acting on the glass, and thereby robbing the internal atmosphere of its heat. I feel confident that it would be good economy to have hothouses provided with strong thick roller blinds if such winters as the last and present were the rule instead of the exception, as the saving in the way of fuel would soon repay the extra expense of coverings, to say nothing of the advantage to the plants by avoiding the excessive heat forced into the house to counteract the outside cold. In fact, both on the ground of economy and efficiency, good permanent roller blinds should be considered as indispensable to forcing houses as the heating apparatus itself. They would obviate sudden changes of temperature, and would be equally useful both in winter and summer, for although in our variable climate extremely high or low temperatures are comparatively rare, they are

all the more trying when they do come, from the unprepared manner in which they find us. If it was an annual occurrence for the thermometer to fall to zero, I have no doubt that we should quickly adopt external coverings to heated glass houses; for, as before stated, the very thinnest material has a marked effect in counteracting severe frost, and with a good woollen protector over the glass the work of the boiler would be greatly reduced.—JAMES GROOM.

DECORATIVE SPECIES OF ASPARAGUS.

WERE the common *Asparagus* (*A. officinalis*), a plant of recent introduction, it would be eagerly sought after on account of the singular beauty of its feathery foliage, or even had it not proved to be an excellent vegetable it would have been a common occupant of our flower borders. Its foliage is attractive in all stages, whether it be the soft delicate green when its hair-like leaves first expand, the rich green of summer, or the golden tints which it assumes in autumn studded with bright orange berries. This type of foliage is peculiar to the genus, no approach to it is to be met with in any other class of plants nearer than the deeply cut foliage of the Fennels or the Horsetails (*Equisetums*). It is usual to speak of these hair-like divisions as leaves, but though they serve the purpose of true leaves, they are only flattened branchlets, termed cladodes. The true leaves consist of greyish or brown triangular scales at the point of origin of the branches, and tufts of cladodes, which are sometimes transformed into spines. These cladodes or false leaves vary in size from $\frac{1}{4}$ in. to 2 in. or 3 in. in length, and from the thickness of a hair to $\frac{1}{2}$ an inch in breadth, and they occur on the shoots either singly or in whorls or tufts (fascicles), similar to the arrangement of the needles of Pines and Firs.

A few of the species of *Asparagus* are quite hardy, but the larger part of them require to be grown under glass, being natives of the extra-tropical parts of the Old World. The flora of South Africa is especially rich in these plants, and the majority of our ornamental kinds are from that region. The hardy sorts and a limited number of the tender ones, are deciduous, with erect, self-supporting stems; but by far the greater portion have slender climbing perennial stems with spreading branches, some of which make elegant conservatory climbers. Their culture is of the simplest kind; their requirements being a light rich soil with plenty of root accommodation, an abundance of light and air, and a temperature of from 50° to 60°, and they are increased by division or by seeds.

There are two distinct modes of cladode, or false-leaf arrangement, among the climbing species; one in which they are compressed so as to form with the twigs flat branches, as in the Yew; and the other where they are arranged in tufts or whorls on erect or drooping branches, after the manner of the needles of the Cedar. Of the first group the most noteworthy are:

A. consanguineus.—A slender, scandent plant, growing to the height of 8 ft. to 10 ft., with numerous lateral shoots from 1 ft. to

2 ft. in length, which have a tendency to ascend and recurve. Its cladodes, which are hair-like and curved, are in fascicles of eight to ten each, and its flowers, which are greenish-white and pendulous, are followed by bright orange berries. It is one of the best slender cool-house climbers, suitable for training up pillars or rafters, and its foliage is serviceable for cutting.

A. Cooperi.—A more robust plant than the preceding, with a stiff spine at each joint, and numerous spreading flat branches. Its slightly curved cladodes, which do not exceed half an inch in length, number from six to fifteen in a fascicle. The flowers are not very showy, being rather greenish, with yellow anthers, and they are produced in clusters of from two to five at the base of the fascicles; but the foliage alone is sufficient to recommend it.

A. plumosus is of a similar habit to both the foregoing, but a far more elegant plant than either; indeed, for the exquisite fineness of its foliage it has no rival among flowering plants, and in grace it quite equals some of the fine-cut hair-ferns, such as *Trichomanes* *Pluma* and *fœniculaceum*. Unlike our garden *Asparagus*, its stems have a flat frond-like appearance, and the whole plant in a young state is not unlike *Asplenium ferulaceum*, but much finer as regards cutting. As it becomes older its stems become scandent, but its lateral branches retain all the elegance of the juvenile state. There is probably no more useful plant known for associating with cut flowers, as it retains its freshness for several days. It is a native of Natal.

A. scandens.—In dimensions this comes near *A. Cooperi*, but the cladodes are totally different both in size and arrangement; they are quite four times the width and twice the length, and in tufts of three or five. A spray is not unlike a fragment of *Taxodium*, but with polished green twigs. The flowers, which are pure white and droop from the tufts of false leaves, are succeeded by scarlet berries. This should be much more grown than it is where cut foliage is required, as it retains its freshness for a very long period, a remark, it may be observed,

which applies with nearly equal force to them all.

A few of the best of the whorled types are:

A. æthiopicus, a species with a slender climbing stem and spiny joints and cladodes, from 1 in. to 2 in. in length, in clusters of six or seven in each, and axillary racemes of pure white flowers with red anthers. The three-leaved variety of this is a much finer plant than the type, and one which seems to be specifically distinct. It blooms from August to October, and is a native of Tropical and South Africa.

A. ramosissimus.—A slender climbing species with drooping branches and flat shining acute cladodes in fascicles of five or six, and numerous white pendulous flowers. A common South African plant.

A. falcatus has the largest cladodes of any of those enumerated; being 2 in. or more in length, and arranged singly or in twos or threes. It has slender green polished stems and flexuous branches, with foliage of a dark glossy green.



A spray of *Asparagus consanguineus* (one half natural size).

A. virgatus.—A plant which comes near the common *Asparagus* in habit, not being at all scandent; has a perennial wiry stem supporting a conical plume of foliage. A very suitable plant for pot culture and conservatory decoration.

A. crispus.—This is the same as the plant known by the names of *A. decumbens* and *A. plumosus*. Its numerous stems are too slender to bear the weight of its foliage without support, consequently it assumes a pendent habit. Its cladodes are about $\frac{1}{2}$ in. in length, slightly falcate, and arranged both singly and in fascicles. Its flowers are solitary and inconspicuous. It makes an elegant basket plant, and a more effective curtain plant than many used for this purpose. Also a native of South Africa.

Of the hardy kinds *A. verticillatus* is a fine ornamental plant with greyish-green stems, varying from 3 ft. to 5 ft. in height, and lateral shoots decked with innumerable whorls of delicate green cladodes. This would have a beautiful effect if planted by the margin of a watercourse, with a groundwork of Butter Bur (*Petasites*) or Marsh Marigold. A native of South and Eastern Europe.

C. M.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Treatment of Phalænopsis.—In passing through a garden the other day that is managed by a friend of mine, I was struck with the satisfactory result of a suggestion which I made some eighteen months ago with regard to the treatment of a collection of *Phalænopsis*, which is a speciality in the establishment in question. At the time I mention the plants, some 150 in number, were in a deplorable condition, with scarcely a leaf on them, and covered with spot, the few spikes which they had thrown up being weak and poor. They were suspended in baskets in a span-roofed house, with a Peach house at either end, partitioned off with the ordinary glass divisions. Under the stage was a shallow tank filled with water, the service pipe for the houses being run through it, and creating a continual steam. The house was kept densely shaded, and very close and warm. I was asked if I could assign any reason for the unsatisfactory state of the plants—a question which led me to explain the conditions under which I had found them growing and collected them in the Philippines—conditions widely different from the artificial treatment to which they are generally subjected at home. I suggested more light and air, and in order to ensure a continual current in the house, I recommended knocking out some panes of glass in the partitions at either end; my suggestions were carried out, and the result was that many of the plants that then were barely existing have made four and five leaves of good size and substance, and of that dark glossy hue which indicates robust health; and they are throwing up spikes that promise well for a fine display of bloom. My friend tells me that when he has air on the Peach houses the baskets swing about. The owner is so far satisfied with the result of the experiment that he has since tripled his previous collections.—W. CHAPMAN.

Anthocercis viscosa.—This is a free growing evergreen greenhouse shrub, which all through the spring, summer, and autumn months produces its large salver-shaped flowers amongst its blunt or obovate foliage. The fine partite limb of the flower is of snowy whiteness, the broad tube being striped with green inside, and the flowers, although not particularly showy in character, owing to their large size, distinct form, and the length of time during which they continue in perfection, render this plant a desirable one for all botanical and perchance many general collections. The blossoms are produced from the axils of the leaves, which are regularly arranged alternately, and the flowering branches are from 1 ft. to $1\frac{1}{2}$ ft. in length. It is a native of New Holland. Our sketch, (p. 539) made from a specimen in the Trinity College Botanical Gardens, Dublin, shows the natural size and contour of the flower and leaves.—F. W. B.

The Roman Hyacinth is already in full bloom, and is doubly welcome amid the frost and snow. It seems a pity that the so-called blue Roman Hyacinth is so far inferior to the white. The latter is really invaluable for vases and bouquet purposes, and also as a pot plant from November till January.—D. T. FISH.

Early Violets.—Mr. Groom (p. 459) speaks highly of the Neapolitan for early blooming. I have grown it for several years and have now a large frame half filled with it, the other half being planted with the more recently introduced *Marie Louise*, which has proved itself to be by far the best of the two. This variety has been producing abundance of very large blooms since the end of September, and promises to continue doing so for months to come, whilst the Neapolitan, under exactly the same treatment, has not as yet produced a bloom; it probably will bear blooms by-and-bye, and whenever they do come they are sure to be appreciated, but for the future I have made up my mind to depend chiefly on *Marie*

Louise, which I find to be a more robust grower, much earlier, and the blooms larger and also sweeter scented than those of the Neapolitan. Any one propagating and growing this variety as Mr. Groom recommends the Neapolitan to be grown, will, I am sure, find it to give satisfaction and also to be one of the finest varieties in cultivation.—H. HARRIS.

Orchid Culture.—The communication of Mr. Thomson (p. 435) to the effect that Dr. Paterson grows his *Vandas* and East Indian Orchids very successfully in a temperature where people can "sit with perfect comfort by the hour at all seasons of the year" will interest Orchid growers. Hitherto these plants have been grown well in warm houses, as the fine specimens in many public and private gardens testify, but if they can be grown in a greenhouse it will place many fine subjects within the reach of cultivators who have not hitherto attempted their culture. It would be well to have further information, however, and I dare say many growers besides myself would be glad to have a correct account of the temperature maintained in Dr. Paterson's houses if Mr. Thomson or the Doctor would furnish it.—CULTIVATOR.

Autumn Crocuses Protected.—Mr. Burbidge informs us that he has preserved and greatly added to the beauty of his tufts of *Crocus speciosus* by covering them with a large bell-glass. The "cloches" would be admirable for this purpose, as the plants could be seen so well within. It is probable that a number of plants, such as the Double Meadow Saffron, and the new autumn flowering Crocuses now being introduced, would be a great deal better for similar treatment—at least in many districts, and on certain soils.

LEAFLETS.

MR. PETER VEITCH has sent me some photographs taken in the beautiful Botanic Garden at Sydney, New South Wales, which is now so well managed by Charles Moore, formerly of the Botanic Gardens, Regent's Park, and brother to the late David Moore, of Glasnevin. It would be delightful to us northerners who know him to see him at home amidst all those beautiful plants. The scene is very different to the old herbaceous ground in the Botanic Gardens, Regent's Park. Exquisite plumage of Palm, fine-foliaged plants, delicate tracery of *Acacia*, great leaves of *Agave*, and strange *Aralias* adorn these "mixed borders," and form a combination such as we never see at home. And then there are Tree Ferns in all stages shading the garden, fountain, and stream, and very beautiful they are, as one would expect, in the collection of one who has had so much to do with collecting Tree Ferns.

It is difficult to realise the beauty and the character of Tree Ferns in our houses; they want to be standing free in the open air, in which position also the singularly marked bark often shows to good effect. It is still more difficult to realize the beauty of Palms and the Cycads in our cramped houses; in such a garden as this one really sees their beauty for the first time; a Palm—I never had the least idea of it till I saw it in the open air, its wonderful lines thrown against the sky. Among all this Sydney vegetation, what appears to be a Weeping Willow is in its glory, and, contrasted with Tree Fern, Palm, and *Arum*, and *Papyrus*, affords the most bewitching effect in the garden. I do not, however, see the Bamboo playing so graceful a part as it often does in the gardens of southern Europe.

Mr. John Murray, in referring to my "leaflets" on Goodwood, tells me that similar fine effects from the planting of Cedars on a large scale are seen at Highclere, a place I have not had the pleasure of seeing. But how much there is to be done generally in creating new landscapes, so to say, by the bold use of the Cedar of Lebanon and other noble hardy exotic trees! For such a home landscape as that at Goodwood is essentially distinct from what is generally seen in country seats.

Mr. Jean Sisley writes me from Lyons that they have had 3° below zero Fahrenheit of frost, which is quite exceptional in that country and at this time of the year. It has not before occurred in this century. They are afraid that a great many plants will be killed, particularly the Tea Roses; the Fig trees will probably be injured, and the Vines also.

I hear that Mr. Burbidge is making a very complete collection of Narcissi at the College Botanic Gardens; and a very good plan too. Of all the flowers of the northern world these are the only ones which really brave the vicissitudes of our spring, and such an attention will be well repaid, especially on a soil where they grow so well. It is an excellent plan for amateurs and others to take up one family and do it well; and they can scarcely do so without adding to our knowledge, and probably to the garden treasures of the country.

It is proposed to remove the hothouses of the city of Paris from La Meutte, their present place, to Le Parc des Princes, in the Bois de Boulogne. Paris is very well supplied indeed with public nurseries, both for hardy and tender plants, and the glass department is so arranged as to be a useful establishment, open to the public in a reasonable way, apart altogether from its use as a nursery. Some years ago it was an exceedingly interesting garden, and many fine plants were introduced there, and valuable experiments made. In the future, and in a more open locality, it will no doubt be no less interesting and useful.

Mr. Frank Miles tells me that he has got many of Regel's new plants in his garden, which he hopes to flower during the coming year. It is delightful to get new and beautiful or strange plants from these great wild regions of the northern world. No doubt they yet contain many lovely plants which we should be glad to see alive in our gardens.

It is most pleasant to read the American rural journals, and see the evidence of the rapidly-growing taste for the more beautiful side of gardening, so to say, and the intelligence and ability with which it is discussed in them. With such a fine and varied climate, the abundant and beautiful native flora, and capabilities of growing the plants of other countries to a vast extent, the future of ornamental gardening in America is big with promise. The name of the good old house of Parsons, of Long Island, is very frequently seen in the best work of this kind. *Scribner's*, a magazine of general literature, has lately taken up topics of gardening in a most spirited way, and illustrates the articles beautifully, the matter also being very good.

I also like the spirited way in which good Americans help their country and their youth, rather than seek to "found a family" and taking care that they have the least possible amount of motive for exertion. By the will of John Hopkins, it is stated in *Scribner's Monthly*, a merchant of Baltimore, the sum of 7,000,000 dols. was devoted to the endowment of a university and a hospital, 3,500,000 dols. being appropriated to each. This is the largest single endowment ever made to an institution of learning in that country. To the bequest no burdensome conditions were attached. Among the few definite provisions of the will was one requiring that all building and other expenses should be defrayed out of the income, leaving the capital untouched. Clifton, the estate of the donor, and forming part of the bequest, contains over 300 acres, and is situated three miles from Baltimore.

Mr. Horne, Curator of the Botanic Garden, Mauritius, is in England, and gives me a glowing account of the charms of the

Sydney gardens, and also of the vegetation of the gardens in some of the South Sea Islands. I was surprised to hear of the loving care with which some of the natives cultivate the many plants in their gardens.

I looked into the academy to see the students' work, and was much pleased with a very spirited landscape, by Mr. Frank Miles, for which he received an extra medal. Mr. Miles, as many readers of *THE GARDEN* know, is an enthusiastic grower of hardy plants, and in its columns I have often been pleased to read his notes thereon.

In this age of beer, tobacco, and champagne, it would, perhaps, be a good thing if more of our young artists had like tastes. They have a good deal to do yet, among other things to paint an English garden. I never knew anybody come so near it as Fred Walker. If anybody should leave me a fortune, I think I would found a prize for the best picture of an English garden, without crockery-ware, geometry, water-squirts, or much brick or stone.

I went to a little exhibition at an artists' club some time ago, and found the smoking creatures there in a fog of Tobacco such as would kill any ordinary insects. The pictures on the wall, however, were not such as made one regret beating a hasty retreat. Next day in walking through one of the Greek rooms of the British Museum I was led to wonder if any one of these men could ever produce anything worthy of mention in the same breath with what is so full of human dignity and grace that one is lifted by the mere sight of it clean out of this world of mud, smoke, and gin palaces.

However, about art in relation to gardens, the most deplorable thing at present is the state of botanical drawing. The stiff, hard, and poor flowers that are drawn, and the nightmare horrors by botanical artists that are announced with a flourish are too much for human patience; and yet, in spite of all the laughter and sorrow they excite, they continue to appear. The worst of the botanical artist is that he thinks he is quite safe when he only takes due notice of one fact or set of facts. He counts the petals and probably measures the diameter, and gives one a hard and unnatural effect.

Some people make an inexact criticism of such work by saying that it is faithful, but it is "not artistic." The criticism is just as wrong as the drawing. The play of light and shade, the delicate gradation of the parts, which are so exquisite in many plants, have just as much, if not greater value, than the fact they condescend to take notice of. Sometimes I have noticed botanical drawings in which, while the petals are counted exactly, no notice is taken of undulations or charm of petal that could not be counted, and was, in fact, ignored. I asked an artist, with no pretensions to be botanical, to draw a plant that had been thus treated, and here I was amused to find that he had taken notice of the delicate waving of the petals, while he was also as right in his count as the so-called botanical artist.

At Goodwood this year the Peach tree were destroyed by a very cold easterly rain which fell on them in June. Mr. Rutland, however, does not despair in the least of soon having good crops again, and has already planted some vigorous young trees. He believes, as I do, that a coping is necessary, not merely a wide temporary one to save them from the frost, but also a narrower and permanent one of tiles, brick, or stone, which would, at all times, protect the wall from a very cold or

sleety rain. The Peach is a tender tree, and where success is desired, must not be exposed on a naked wall without a coping, a state of things which may be seen every day, even in well managed gardens.

There has been so many failures of the Peach tree in the open air, even in the south of England, of late years, that I read with pleasure the following in the *Journal of Horticulture* :—

Although I have to contend with the cold climate of Roxburghshire, as far north as the Tweed, yet I have had good crops of Peaches on walls during the last ten seasons, and the trees now promise well for future bearing. My wall is 14 ft. high, 130 ft. of the southern aspect being covered with Peach trees, the other portion being devoted to Apricots; and although I lost many valuable shrubs and ornamental trees last winter, only a few small dead branches here and there on the Peach trees indicated the severe frost to which they were exposed. The Royal George and Noblesse are the two varieties which succeed best with me.

The fact is, where the trees are exposed vertically on the walls it is simply ruinous to them. In addition to a wide temporary coping (which should be removed when all danger of frost is over) there ought to be a permanent coping of 6 in. or 8 in., which would save the trees at all times to a great extent from the effect of cold vertical rains. This coping ought to be deep in proportion to the exposure of the wall to prevailing winds and storms.

Mr. W. Taylor, in writing a very sensible protest against hard pruning in the same journal, says :—

"In a very few years I expect Quince and Paradise stocks to follow the road which I am now happy to see standard Brier stocks are taking, and we shall have discovered afresh the astounding fact that a very good Pear can actually be grown on a Pear tree—a fact tolerably well known to our great grandmothers, but one which we modern scientific horticulturists have either lost sight of or willfully ignore."

As regards the Quince and the Paradise stocks, this is going some distance along a wrong track. What we ought to hope to see is a keener appreciation and fuller knowledge of the great advantages which the different stocks afford when used by the intelligent grower. What we already know of stocks seems to promise that much more has to be learnt, but what is already done by skilful cultivators for the market is most valuable. In all the great fruit-growing districts, both in this country, on the Continent, and in America, there is no lack whatever of trees on their own stocks, so to say, but the best men know also that kinds and conditions every day occur which require the aid of either the Quince or the Paradise stocks, and some other kind of form than the standard. There are even varieties which do not thrive as standard trees, but when treated otherwise are excellent.

For example, in the same number there is a note from Mr. Luckhurst, which shows how other forms besides the standard may prove useful or essential :—

"The value of walls for delicate Pears has been well shown this year. Excellent fruit of Doyenné du Comice are just now ripe from a tree on a west wall—a month later than usual; but the fruit on a couple of fine pyramids was not half grown, and quite worthless. It was the same with certain other varieties, and it is also noteworthy that wall trees both on east and west aspects had full crops of useful fruit, in pleasant contrast to the barren condition of most of the pyramids."

Nevertheless, there can be no doubt that in gardens not nearly enough attention is paid to standard trees; and it is rare to find an orchard in a country seat. Much more rare is it to find one fairly well-managed.

Mr. C. W. Dod makes a few much needed remarks on plant names in a contemporary.

"Will not some one who has influence in high places intercede to save gardeners from the dreadfully long names which are now adopted

for new flowers? Daffodils are the worst offenders. New varieties are coming fast upon us with such names as *Narcissus incomparabilis* Leedsii argenteus aureo-tinctus. If we are to have flower-pegs large enough for such names, our bulb gardens in winter will look more like cemeteries than ever. Lilies are nearly as bad. In Roosen's catalogue this autumn we have *Lilium speciosum atro-purpureum* Schrymackersi. Why need we have such names when there are already pretty combinations containing from three to six letters, easily written and easily pronounced, enough for every existing variety of Daffodil or Lily, and a thousand more might readily be invented? Surely such names as Alma, Clio, Ida, Ion, are sufficiently distinctive, and might be used for florists' varieties of each kind of flower, without fear of confusion."

It is not only those who love flowers and simple words, and have no pretension to technical or great knowledge of any kind, who groan under this pedantic tyranny. Mr. Ruskin is quite scornful about it and in a very amusing way. It is to be hoped therefore that Mr. Barr and others who christen Daffodils and other innocent children, will adopt Mr. Dod's good suggestion, and not give the pretty things ugly names.

There are many grumblings about open spaces for London, but the most striking fact about the business to me is the enormous amount of good that has been done in that way during the past dozen years or so. If we go on in the same ratio, London will be well supplied with open spaces. Much more necessary to my mind, however, at present are open streets, planted with trees, where possible; but, in any case, open and dignified, rendering locomotion from any part of the town to parks and open spaces an easy matter. At present London is wholly disgraceful in this respect; and what it is as a city can never be seen so long as the present system of close, narrow thoroughfares exists. Some of the most beautiful suburbs and some of the finest things in the east end of London are approached with such difficulty from the west end that few people care to go.

I notice an article in the *Builder* on town parks, in which the writer says that "the Paris municipality make a large and wise use of their squares and gardens to place the numerous statues they yearly purchase at the exhibition; and charming is the effect, reminding one of the gardens of Florence and Rome, and many another city in Italy—that home of the gardener's art." This is a very foolish remark. The dotting about of statues everywhere is one of the principal weaknesses in the parks and gardens of Paris, and if it goes on it will cure itself some day, as people will, no doubt, eventually see the absurdity of dotting about a quantity of stone in green gardens. The gardens at Rome, as well as the gardens of Paris, are injured by the scattering about of statues and busts. I never saw three well-placed statues in a garden in my life. It is just possible to place one here and there, and, under special circumstances, with good taste and effect. I have often seen a pretty garden spoiled with statues, and, as a principle, it is a vicious one.

Much more just is the following from the *Gardener's Magazine* :

"A vacant plot of land in Old Street is to be adorned with a granite column 33 ft. high, at a cost of over eight hundred pounds! We know the spot well. It is just large enough to nourish and display one fine Plane tree, which would cost less than eight hundred pence, and be a blessing to the dreary district. A costly and paltry monolith without meaning will not even confer respectability on Old Street."

How much is wasted in like objects in all great cities! I do not think, however, any stone scenes in them are so devoid of meaning as Trafalgar Square, and that curious stone-yard at the upper end of the Serpentine.

That it is a world of progress after all is proved by the florists offering prizes for species of *Primula*. The *Auricula*

Society intend doing this, and it is in the right direction. They also offer prizes for seedlings in the various groups. I wish they would offer prizes for the most distinct and remarkable breaks-away from their pretty circular ideals. I have often thought of the many lovely things that were lost to the world because their beauty did not allow of measurement by the narrow standard in use. How long will "florists" continue to use this absurd word, which had some meaning at one time, but not now, when any favourite flower may become the object of specialists' attentions?

Referring to growing and procuring hardy flowers, an experienced correspondent writes as follows: "During the frost I had four men wheeling rotten manure and leaf-mould on to the borders, and many are now covered 4 in. thick, and this will be forked in carefully as soon as one can work well on the ground. I think manure and shelter are the two great things in growing all flowers of robust habit. When folks grow Cabbages they use manure, but when they grow flowers they seem to think that they do not require nutriment—they are starved, in fact. The expense of hardy flowers, and the miserable bits sent out in thimble pots do much harm to the trade. I have had plants sent here to order, and they were such as I should have been ashamed to have asked any one to accept as a gift. I find it best to beg plants. I can actually beg better plants than it is possible to buy." I quite agree with this, and think that the sending out of hardy plants in small pots must give way to the better plan of good strong tufts from the open ground. There is a fortune for any nurseryman who will plant out such kinds as are wanted and who will sell them at a reasonable rate.

"It is said that the Chinese have a method of preserving Grapes during the entire year by cutting a circular piece out of a ripe Pumpkin or Gourd, making an aperture large enough to admit the hand. The interior is then completely cleaned out, the ripe Grapes are placed inside, and the cover replaced and pressed in firmly. The Pumpkins are then kept in a cool place, and the Grapes will be found to retain their freshness for a very long time." The above paragraph is "going the rounds" of the newspapers; but I wish some one would inform us how to preserve the Pumpkin.

Recently in the pages of a contemporary, a correspondent writing on Strawberry forcing, suggests that hard freezing of the plants is beneficial! One paragraph runs thus: "Now will be a good time to compare the roots of plants that have been housed some time ago, with those that have been standing out of doors, and it will also be well to note the result of the inspection, so that there will be no timidity in adopting the exposed system of wintering another year, which saves so much labour and is so beneficial to the plants." After this we may shortly expect Strawberries from the Arctic regions.

I have in my time had a good deal to do with Strawberry forcing, and though the plants have now and then had to put up with a few degrees of frost, they have occasionally told me forcibly enough, that they preferred "Jack Frost" at a distance. Many there are like them, who, though compelled to bear frost, thrive best without it; I am not sure that long exposure to a very severe frost would not do harm that could not be repaired.

JUSTICIA.

Birds and Fruit Buds.—If the present severe weather continues, cultivators must keep a sharp out-look for birds, like the bullfinch and sparrow, that attack the buds of fruit trees, as they quickly clear a plantation if left unmolested. Powder and shot is the safest remedy, but when these cannot be used, fish nets or dusting with some noxious compound must be resorted to.—J. G.

ROSES.

ROSE HOUSE.

Pot Roses.—The buds of even the latest-flowering varieties on walls and in the most protected situations have been cut off earlier than usual this autumn; consequently, where there is at command a good supply of pot plants, these will be now more than usually acceptable. If, after the crop of buds on them when brought indoors is over, the plants of such kinds as will bear forcing are put in heat, they will make wood and produce more flowers later in the season; but there is considerable difference in the amount of heat which the different varieties of Roses will endure; for instance, the beautiful white Niphetos will not succeed well unless it has more warmth than many other of the best Tea varieties require; consequently, it should be accommodated at the warmest end of the house. Those who have plenty of stock to be introduced to heat at different times in succession through the winter, with a house sufficiently large to accommodate them, will, with a moderate amount of heat, be in a much better position for keeping up a continuous supply of blooms than where the room and plants are so insufficient as to necessitate the bloom being hurried on; for though there are many kinds of Tea Roses that will stand more heat than is generally supposed, still with the diminished light during the short days of winter, any excess of warmth is sure to result in weak foliage, shoots little able to bear a full complement of fine flowers, and proportionately liable to be affected with mildew and insects. Use every precaution against the introduction to the house of aphides or red spider by dipping or syringing all plants before they are brought in with Tobacco water, in which is dissolved a little Gishurst, which latter will kill red spider with a weaker application than any other insecticide which I have ever tried. All the air that should be given for a considerable time is a very small admission near the ridge of the house, as if the atmosphere is at all chilled, or the external air brought in contact with the young foliage, mildew is certain forthwith to make its appearance; and, even with the most attentive precautions, it will from time to time attack the plants. On this account, therefore, it is necessary to subject the plants to close inspection, and apply sulphur immediately any leaves are found with the slight curl upon them indicative of the presence of the parasite. Those who have not had much experience with Rose forcing through the winter cannot be too particular in keeping a constant outlook for this worst of all pests, as if allowed to run for only a few days, it will cause the loss of probably half the leaves which the plants possess, with a corresponding reduction in their ability to flower. Roses that are planted out and trained on pillars, or on the roof, must be closely watched with the view of detecting mildew, and should, as far as possible, have their heads kept away from near where the air is admitted. All plants that have their pots well filled with roots ought to be regularly assisted with manure water. This will not only benefit the first crop of flowers which they produce, but will strengthen the growth from which later blooms may be expected. As a dark coloured variety, to mix with the light Teas, there is none that I have tried equal to General Jacqueminot, to be followed by such sorts as Duke of Edinburgh, Beauty of Waltham, Charles Lefebvre, Annie Wood, Baronne Hausmann, and Jules Margottin. Plants for successional forcing to be introduced later in the season, if in cold pits or frames, should have their pots plunged in ashes, leaves, or something that will keep the soil from being frozen, along with sufficient protecting material on and around the frames, as, in common with other plants, however hardy, their roots get injured by compression when the soil in the pots is frozen.

Roses in Conservatories and Greenhouses.—Where Roses are grown on rafters, pillars, or on back walls in conservatories or greenhouses, they should be at once pruned, before the fire-heat, which it is necessary to use to give sufficient warmth to the other inmates, has an influence in moving them into growth. If at the same time the whole of the stems and shoots remaining can be taken down and well syringed with the mixture of Tobacco water and Gishurst recommended for pot plants, it will ensure their being clear from insects when growth commences, a matter of importance, as the wood devoid of leaves will bear a much stronger application of the Tobacco water than young growth would stand. Roses planted out, as is usual, inside the house, from the limited extent of space to which their roots are ordinarily confined, are very liable to get into a weak condition, unless the soil is annually renewed as far as possible; therefore it will be much better to do this now than later, when the top growth has to draw upon the roots, rendering them less capable of bearing whatever disturbance they may be subjected to in the operation. As much of the old surface soil ought to be removed as can be done without seriously disturbing the roots, replacing it with three-fourths good sound loam added to one-fourth manure, treading all down moderately firm.

T. BAINES.

Propagation of China and Fairy Roses.—These Roses are easily propagated, and those who may wish to work up a stock of them need experience no difficulty in so doing. Cuttings should be taken about the middle of July, cutting them to two joints, and inserting them so that only the uppermost eye and leaf are above ground. Make the soil—which should consist of a mellow mixture of leaf mould and sandy loam—as firm as the hand can press it, and give a good watering when the work is finished. Then put on the lights, and keep the frame quite close for two days, after which time the lights should be regularly removed on fine, still nights; or, if the weather should be stormy, with heavy rains, tie them, and allow them to remain so day and night. The main point to be observed is to guard the cuttings against the desiccating influence of the hot summer's sun, whilst at the same time avoiding anything like undue confinement and deprivation of light. This result is best attained by placing the frames close up under a north wall, where but little shade will be necessary, and where the atmosphere is at all times more or less cool and moist. As soon as shade can be withdrawn, open the frames and gently syringe the cuttings, leaving them fully exposed to the refreshing influence of the cool night air. This treatment will preserve the foliage green and healthy. By the beginning of the autumn quite 95 per cent. will have taken root, and if protected from severe weather during the winter they will be in first-rate condition for planting out in the spring. By the beginning of March a piece of ground should be well stirred and manured, in which the young plants may be planted some 9 in. apart, when, if copiously watered in hot weather, they will make healthy robust plants by the end of the season. The China Rose is one of the most floriferous varieties that we possess, and the flowers are so useful for cutting that any spare and suitable situation might be profitably filled with them. It is also one of the best kinds for forming a Rose hedge. The Fairy Rose is well suited for pot culture, its neat compact growth and floriferous nature rendering it valuable for forcing purposes. Good strong plants potted now may be introduced into gentle heat at the commencement of the new year, and will come nicely into bloom at a time when Roses of all kinds are very scarce.—J. CORNHILL, *Byfleet*.

Gloire de Dijon, Cheshunt Hybrid, and other Roses for Forcing.—It seems to be becoming a race between Maréchal Niel and Gloire de Dijon as to which is to be the most popular greenhouse Rose. The Maréchal Niel has undoubtedly the advantage in some respects, but Gloire de Dijon is the surest grower either on its own roots or grafted, and the flowers when developed under glass are hardly inferior to those of the other. It has a habit, too, of flowering longer. The popularity of this Rose is shown by the quantity of it which is propagated by the great Rose growers. One noted nurseryman in the south informed me that he grew 20,000 of the Gloire de Dijon alone. At the Handsworth Nurseries, near Sheffield, I saw lately a houseful of young plants of it in 9-in. pots, and about 10 ft. high—all for forcing purposes. As to the Cheshunt Hybrid, it is the best red Rose for planting out under glass with which I am acquainted, being a strong grower and climber, and a free bloomer, producing flowers abundantly in early spring and less or more at all times during the season. Can any of your readers tell me to which class this Rose belongs? It is called a "Hybrid," but it is classed among the "Teas," and was first exhibited as such by its raiser, if I am not mistaken, but it is not Tea-scented, nor like a Tea in flower. Nevertheless, it is a fine Rose. Another useful kind as a variety is Souvenir d'un Ami, also a good forcer or greenhouse Rose, blooming more or less nearly all the year round if it has heat enough in winter, and the flowers are large and of good substance. Nor must our old friend General Jacqueminot be forgotten as a forcer; for early or late work it is still unsurpassed, as it forces better than most others, and opens its buds freely, and its colour is always good. There are, however, but few of our early and free-blooming Roses that do not force freely, and if they are not pushed hard till after the New Year or February they yield plenty of fine flowers.—J. S. W.

China Roses.—Why is it that the old blush and crimson China Roses are not more extensively grown than they are? They flower in succession without a break from June to November, and possess the most pleasing colours to be found among cultivated plants. They grow and flourish in soils and positions in which the Hybrid Perpetual Roses would be starved out of existence. At Gunnersbury Park Mr. Roberts planted several hundred last spring in the shrubby borders, and no other plants in the same borders have proved so effective as these common Roses.

Rose Beds at Goodwood.—I can fully endorse your remarks (p. 529) in reference to pegging down Roses. Three years back I was called upon to replant an old Rose garden, and I introduced these Rose beds round the outside, which I am pleased to say proved very satisfactory. The individual blooms are much larger, and the plants more robust than those under any other system of culture.—R. GILBERT, *Burghley*.

THE FLOWER GARDEN.

STANDARD PELARGONIUMS.

GRAFTED Pelargoniums, such as those recommended by "A. D." (p. 459) are very interesting and useful for the decoration of the greenhouse. The Ivy-leaf and other varieties mentioned seldom, however, remain long in a healthy condition when grafted upon zonals; such, at least, has been my experience with them. Standard zonals, however, have been long and extensively grown here for the decoration of the flower garden, and the diversity of colour furnished by the flowers of these plants is so great, ranging, as it does, from the purest white to the most intensely bright scarlet, many of the intermediate shades being also exceedingly beautiful, that they are altogether better suited for the purpose of planting in the centres of large beds, or in association otherwise with ordinary bedding plants than standard Roses, which are sometimes used for that purpose; but, unfortunately, however beautiful they may be, they are generally past their best at the time when bedding plants are in their greatest beauty, a circumstance which consequently mars the general effect of the garden. As regards standard zonal Pelargoniums, this is certainly not the case, inasmuch as they remain in full bloom from the time they are planted out until it is necessary to remove them to their winter quarters, which need not be earlier than the middle or end of October. The circumstance of growing these plants in the form of standards, appears to increase very considerably the production of bloom, a result which may possibly be ascribed to a certain amount of restriction which they experience in the supply of nourishment from the roots. Indeed, it has been a matter of astonishment to many how such slender stems are able to convey the necessary amount of nourishment to such large, floriferous, and robust heads as those with which they are furnished. Considerable numbers of these plants have long been grown here, and some of them are at least ten or twelve years old, but they are still in excellent health, and annually produce what is considered a very remarkable and good effect in the flower garden during the summer months. The plants used in this way are all seedlings, as such are found to be better suited for the purpose of forming standards than plants raised from cuttings. The seed is sown early in the autumn or as soon as it can be obtained, and the young plants are planted in lines in May following in ordinary garden soil. They are generally in flower by the middle of July, when those intended for standards are selected, and this selection is of course influenced by what may be considered a suitable habit of growth in individual plants, desired colour, and quality of flowers, &c. To such plants a straight, strong stake is supplied, and to this the principal stem is secured, and all other shoots are stopped or cut back, so as to encourage as much as possible the development of the main or principal shoot. Such plants are carefully lifted and potted in the autumn, wintered in a warm greenhouse or similar structure, and again planted out during the following May. And by the end of this, the second season, they have generally attained the desired height, viz., 4 ft. 6 in. When the main shoot is stopped, the lower side shoots are neatly cut off, and the plants are encouraged to form well balanced and symmetrical heads. In autumn they must be again potted, using for the purpose comparatively small pots. They are then placed in a growing temperature until they have recovered from the effects of their removal from the open border, and have become well established in their pots. Treated thus, they will generally be found to be sufficiently developed to take their place as standards in the flower garden during the following or third summer, and, with proper treatment, will, as has been stated, last for many years.

The shoots of the zonal Pelargonium are well known to be somewhat brittle, and are liable to be broken or injured by high winds unless they are well secured by stakes, and a prominence of these necessary supports are apt to detract from the graceful appearance of any plant, however beautiful its flowers and foliage may be. In the case of these Pelargoniums, however, only one stake to each plant is employed, and they are formed of $\frac{3}{8}$ -in. iron rod, $4\frac{1}{2}$ ft. long, furnished with a tripod some 15 in. long, to insert in the soil, as close to the stem of the plant as it can be got without injury to the roots. The stems are secured to those roots which are threaded at the top, so that an iron hoop or ring, 2 ft. in diameter, formed of $\frac{3}{8}$ -in. rod, strengthened by two cross bars, can be fixed by a nut to the head of the iron stake, and which can, of course, be removed at pleasure. To this hoop the shoots are carefully tied as they are produced, and both stakes and hoops are painted green, so that they are not conspicuous, and the hoop is very soon altogether hid by the foliage. The large globular heads, which are soon formed, generally attain dimensions exceeding 4 ft. in diameter, and the highest winds inflict no injury upon them whatever. Towards the middle of October, or before they are likely to be seriously injured by frost, the heads of the plants are cut tolerably close in, the iron stakes and hoops are

remove, and the plants are carefully potted. The somewhat heavy heads are supported by strong wooden stakes, and the plants are placed for a time in gentle warmth, until they have become established in their pots, and give indication of commencing growth.

It is found that the smaller the pots into which the roots of the plants can without injuring them be got, the better the plants generally succeed during the winter. Young shoots are apt to be produced upon the stems during the first year or two, but these are rubbed off as they appear, and as the plants become older this is seldom required. Objections have been made to the practice of training the zonal Pelargoniums in the form of a standard, being, it is alleged, contrary to their natural habit of growth, &c. This argument, however, equally applies to many other species of plants so treated; therefore I will attempt no defence of the practice, further than to say that, in growing them in this manner, an effect can be produced which many have admired, and which it would be difficult to accomplish in any other way.

P. GRIEVE.

Culford, Bury St. Edmunds.

SHRUBBY AND HERBACEOUS SPIRÆAS.

ONE of the most suggestive things I have ever seen in a garden was a group of these plants, both shrubby and herbaceous, in the late



Group of herbaceous and shrubby Spiræas.

Mr. Hewetson's garden at Weybridge. The shrubby species, among which was *Spiræa arifolia*, were towards the centre, and the herbaceous ones grouped around it, and the effect of the combination was singularly beautiful, especially as it occurred in a picturesque spot. It was also a much more natural combination even, speaking in what might be called the technical or scientific sense, than any idea ever seen carried out in a botanic garden. The engraving, though a delicate one, fails to show the right effect owing to a difficulty of showing the immense number of blooms of the white-flowered shrub *Spiræa arifolia*.

The Horned Poppy.—In the Horned Poppy (*Glaucium corniculatum*) may be found a plant of considerable usefulness for winter decorative bedding, as it is quite hardy, and has very handsome ornamental foliage of a silvery hue, almost as white as that of the *Centaurea*. The leaves are much more deeply cut than those of that plant, and, planted closely together, make either an effective mass or very pleasing lines. To ensure strong plants for the winter, seed should be sown about May, as the plant is a biennial, and should be treated as such. When in bloom it makes a striking border plant. —A. D.

NOTES ON HARDY PLANTS.

Geranium Wallichii.—We have found this to be a very useful plant, and one which flowers continuously. Its habit is sprawling; but in some positions this is an advantage. The flowers, which are large and pale blue, have dark veins. It comes true from seed, which is the way to increase it; division need not be attempted.

Anthemis arvensis fl.-pl.—Cut down for cuttings, this is now (Nov. 29th) again in flower, and it will go on blooming if the weather be not too severe. This old plant was picked up a couple of years ago in a miner's cottage garden at Penicuik, and reintroduced to those who had grown it many years ago. It is also cultivated about Kilsyth, in the neighbourhood of Glasgow. Lasting, as it does, any length of time in water, its flowers being perfectly double, and pure white, a colour which contrasts well with the dark green feathery foliage, it is a plant that deserves extensive cultivation.

Venidium calendulaceum.—One as seldom sees this as the invaluable pot Marigold grown as an annual. It was this season in flower in May, and continued until the sharp frost (9°) in October put a stop to it. There is considerable diversity in its seedlings, both as regards habit and the size, shape, and shading of its beautiful orange flowers, which open and shut when cut as regularly as when growing in the border. Careful selection in seed saving is needful in order to secure the best forms of this delicate and refined Marigold, as I have heard it described. I observed that Mr. Joad had a plant of it in the bed of one of his houses, and he is of opinion that it is perennial. Certainly to continue its blooming by growing it indoors would be desirable.

Polygonum cuspidatum.—I should like to add a word of warning to the description of this plant (p. 452). It should never be planted in a border that is annually dug, as the smallest portion of its running roots grows, and it is certain to become a pest equal to *Campanula rapunculoides* and variegated Gout-weed. A border of herbaceous plants 56 yards in length is ruined here by these three pests. The *Polygonum* has also got among the roots of Rose bushes, and never can be eradicated. Its arching branches coming through those of *Madame Plantier* and *Celine Moss* are picturesque perhaps, but turf is the safest position for such a deep strong runner. In spring the young crimson shoots are very ornamental and useful for cutting, and we always wait until it has grown out of the red state before commencing our annual rooting out of the three pests just alluded to. Mr. Salter told me the roots were edible and used as food in Japan.

Thalictrum minus and *T. adiantifolium* are considered synonymous, but there is one striking distinction, viz., *T. minus* runs and *T. adiantifolium* does not. One plant of *T. adiantifolium* came originally from Regent's Park. We find that it does not come true from seed which it ripens freely, and therefore we retain the original true form by means of division. Desirable for foliage as are all the small-growing *Thalictrums*, *T. minus* (I mean the wild plant) has to be watched, as it is a serious matter when the tough roots get among Tea Roses or plants which one cannot lift at any moment.

Saxifraga Wallacei.—Mr. George Wallace, of the Dean Cemetery, the raiser, three years ago, of this distinct *Saxifraga*, which is by some considered to be very like *S. Mawii*, told me two strong points of difference between these two sorts; his seedling, he declares, never forms bulbs as does *Mawii* at the axils of the leaves—what at first sight appear look like bulbs forming, stretch out into branches in *S. Wallacei*, and for winter this is more useful than *Mawii*, as it does not die down like that kind, which springs up from the crown each season. The two plants are quite distinct, and should both be grown.

Cineraria maritima.—This, I see, is recommended for winter bedding, but *C. acanthifolia* is a much more reliable plant, being perfectly hardy and of very stiff, firm growth, bearing snow or wind with impunity. We have symmetrical plants of it alternated with worked Ivies and variegated *Iris foetidissima*, 1 ft. high and 1½ ft. through. We cut these *Cinerarias* down in June, and they at once spring up again thick, and form fine grey specimens from which we get any quantity for our flower-glasses all winter without disfiguring the plants. For draughty entrance halls or passages it is excellent, and, of course, when indoors it is much more silvery, as it is always dry.

Variegated Iris.—We have a large quantity of this, which we used when winter bedding was our strong point, and I would gladly exchange it with any one who is busy with winter gardening, and who wants a pointed-growing variegated plant, as I cannot cast away so useful a subject, and yet we need the ground on which it grows.

Carex japonica variegata.—I do not see this in the lists of plants given for winter beds; it is, nevertheless, a most satisfac-

tory plant for such a purpose, perfectly hardy, and of graceful outline.

Chrysanthemum frutescens.—The severe frosts which we have had have finished half-hardy plants; but this *Chrysanthemum*, which frequently stands the winter here, and the yellow form which we have grown without a name for more than twenty years are both untouched. One variety is a fawn-yellow, not the least primrose, and valuable for its very scarce shade of colour. It is of weaker and thinner growth than the white, so that in planting out we set three yellow for one of the white kind. It is, however, a pity to cry up one plant at the expense of another; both should be in every mixed border, possibly all three, but the Primrose form we have not here. The blue-green foliage of white *Chrysanthemum frutescens* is most attractive in the borders at this season, and useful for cutting. It is grown in abundance for the Paris markets; "I heard of the fawn-coloured *C. frutescens* at Nice," a resident there exclaimed on seeing it in our borders.

Pine-apple-Scented Salvia.—This is not killed yet; it is called *elegans* about here, but at Mr. Joad's garden I seen quite a different plant under that name, and the Pine-apple was merely labelled sweet scented, and had come from Mr. Green thus designated.

Lobelia fulgens.—This is quite unhurt as yet. I saw at Fotley and Staunton-on-Wye (Herefordshire) a bed of *L. cardinalis*, which had stood without protection, save that of the snow, last winter. At Fotley also *Berberidopsis corallina* and *Fabiana imbricata* on the house wall had stood unprotected and unhurt.

Wardie Lodge, Edinburgh.

F. J. HOPE.

A FINE SUB-TROPICAL BED.

ABOUT the middle of October, I paid a visit to a friend living in the south-eastern part of Kent who takes the greatest interest in his garden. At the back of his house is a long lawn with an undulating bank on either side judiciously planted with ornamental shrubs and trees; in one of the recesses was a bed of very fine Castor-oil plants, and Chinese Rice-paper plants, which notwithstanding the cold and wet summer which we have had, were in first-rate condition and most effective. With the smooth turf in front and the shrubs behind, the group stood out grandly. I was much surprised to learn with how little trouble and expense this fine effect had been produced, the plants whilst under cover never required a space of more than 20 square feet; had the same bed been planted with ordinary bedding plants, the attendant expense and labour must have been much greater, and the effect to my taste much less. Of this bed I obtained the following notes from my friend, thinking they might prove of interest to some of the readers of THE GARDEN.

"The garden was laid out by Mr. Gibson about ten years ago, and shows what can be done with the aid of a skilled garden architect and without a large outlay of money. About five acres of ground were purchased at the back of a good sized semi-detached villa residence within an easy five minutes walk of a town of over 20,000 inhabitants; there were natural advantages in a landscape point of view, but they were so utilized as to make the surrounding property look as if it belonged to the same owner. The general exclamation of friends on seeing the bed in question, has been 'how very handsome, so large, and in this wet year too, but we could not attempt anything of this kind, it requires too much glass.' Well, let us see. The bed is curved in shape, it is about 27 ft. or 28 ft. long, and not quite 6 ft. in width, it faces S.E., and is on a slight artificial slope on the inner curve of a small shrubbery. The soil of the bed is from 15 in. to 18 in. in depth, and is replenished every spring with a little rotten manure and half rotten leaf mould, and it rests on a little over 2 ft. of brick rubbish. The Castor-oil plants this season varied from 4 ft. 6 in. to 7 ft. in height, and they consisted of the tall and short growing sorts of both the red-leaved and green-leaved varieties judiciously mixed; there were in all about thirty, and about an equal number of the *Aralia papyrifera*, the latter forming a row in front, and one or two were planted behind the row, just to break the formality of a line. The *Aralias* were over 2 ft. in height.

"The management of these plants would not tax the resources of any ordinary garden where there is a glasshouse or two and a glazed pit, and also the command of a little bottom-heat. The Castor-oil Beans, which germinate very rapidly in a little bottom-heat, were sown in small thumb pots as late as the first week in April, in a small hothouse, but not in bottom-heat; three or four days after they had been shifted into small 5-in. pots, they were removed to a sheltered part of a greenhouse, and then on to a glazed pit, and they were turned into the bed out of 6-in. pots towards the end of June. When the frosts of the previous autumn had destroyed the beauty of the *Aralias* which had been planted out, and had killed the tops, a few of the quill-like roots were dug up and placed in seed pans in

the hothouse; more plants sprang up than were wanted; the best were planted in small thumb pots, and left for six weeks or more in the hothouse; after which they were shifted into slightly larger pots, and placed in the greenhouse, and treated in the same way as the Castor-oil plants, except that they were turned out of 7-in. pots into the bed. During the whole of this time the plants did not require more space than the pots which contained them.

"In a hot season a bed of this sort would require an occasional watering to soak into the soil. There is really no more trouble than with ordinary bedding stock which has to be saved through the winter, and there can be no comparison as to beauty between the handsome foliage of the sub-tropical plants and the flat bed of colour, however fine, which is oftener than not damaged by rain just at the time when the garden is wanted to look at its best." G. S. S.

HARDY v. TENDER PLANTS.

UNDER this heading there are some remarks (p. 504) which I do not think ought to be passed over unnoticed, because comparisons are there made that are not only in bad taste but positively misleading. An injustice, too, is done to cultivators and owners of choice plants. The writer of the remarks in question must either be drawing upon his own imagination or he places a low estimate upon the tastes of the horticultural public. He says that *Coleus Verschaffeltii* would still be much admired if it cost a guinea a plant. Now he says it is disregarded because it is common. The fact is, this *Coleus* is the only one that has been extensively grown, just because it is easily managed, and the only one that succeeds as a bedding plant. There are few gardens without it, and it is extensively grown in our public parks and gardens because it is cheap. The remarks about *Gardenia florida* are not very obvious, but when its culture is understood no plant is easier grown, and most persons believe that it is not inferior to a good Pink, but its comparison to a Rose is out of the question. Then we have I think most injudicious comparisons between Orchids and hardy plants. I have grown and admired hardy plants for at least a quarter of a century; but the idea of comparing *Calanthe Veitchii* with a Snapdragon is too much. Snapdragons are beautiful hardy plants for the cottagers' garden, or any garden for that matter, but they never flower at Christmas, while *Calanthe Veitchii* gladdens us with gorgeous spikes of rose and crimson flowers at that dull and dreary season. *C. veratrifolia* is, we are told, inferior to a good white Phlox, and that it would be positively insignificant in a herbaceous border. I really cannot understand how a person having the least knowledge of plants can make such a statement. If *Calanthe veratrifolia* could be grown in a herbaceous border as it can be grown in an hothouse, it would stand out pre-eminently as one of the most beautiful of plants. Comparing it with a white Phlox is absurd. *Calanthe veratrifolia* has flowers of snowy purity, and they last in beauty for three months, and in a cut state they can be used for purposes for which no one would dream of using the Phlox.

The intrinsic beauty of flowers cannot be measured by pounds, shillings, and pence; their commercial value must always depend on their rarity and beauty combined. Many new and rare Orchids are introduced annually, but all Orchid growers are well aware that they do not fetch a high price merely because they are rare, but because they are beautiful as well. Mr. Stevens, of King Street, Covent Garden, could tell us something about the value of Orchids when growers have found out their intrinsic worth. Collectors, too, soon find out to their cost that it does not pay to introduce plants of any kind that have only rarity to recommend them. I will not continue my remarks further, except to say that the most outrageous taste is displayed in reference to the *Bougainvillea*. That hardy herbaceous plants have been sadly neglected there can be no doubt; that there is now an equally strong feeling in their favour cannot be questioned; and if we are indebted to one periodical more than another for bringing about this better state of things it is THE GARDEN. But there is one fact that must not be lost sight of, and it is this—herbaceous and hardy plants claim a place in the flower garden, but if pushed into a position which they cannot worthily occupy, and if unjust comparisons are made between them and other beautiful flowers, no good can come of it. Let all things come in their proper order. Let there be a place for all, and every one to its place. J. DOUGLAS.

Osborn's Golden Feather.—I find that this kind having a denser and more compact habit of growth than the commoner sort, withstands the winter best. This may be a matter of little moment to those who only use these plants the first year raised from seed, and then throw them away; but those who use them for winter effect, and especially those who grow them in quantity to seed the

second year, find it to be a matter of the first importance that they should possess the hardiest kind. Osborn's lacinated variety is, perhaps, somewhat less bright in hue, but its foliage is the most pleasing; and a subdued yellow is certainly much more acceptable under brilliant sunshine than a glaring gaudy tint like that furnished by a mass of the common kind.—A. D.

TOM THUMB FUCHSIA.

THIS is a pretty little plant, somewhat resembling *F. gracilis*, but smaller, rarely exceeding 1 ft. in height, and forming spreading little bushes from 12 in. to 18 in. in diameter, each tiny shoot being laden with crimson-sepalled, purple-petalled flowers and bright buds, as suggested in the annexed engraving, which represents the top of a flowering shoot, exactly of the natural size. The plant does not appear to be generally grown in England, but here, in Ireland,



Tom Thumb Fuchsia.

the naturalised home of the Fuchsia, it is more common, although nowhere so plentiful as the *F. globosa*, *F. Riccartoni*, and *F. gracilis*. Little bushes of it are charming ornaments to the rockery and herbaceous border, or even for isolated positions on the lawn in sheltered places. Cuttings inserted in any light garden soil about July, and sheltered by a hand-glass or cloche, root freely and form pretty little plants for flowering the following year. As a pot plant it is very desirable, and if cuttings be forwarded in a cold frame pretty little specimens may be obtained, and are very useful for summer and autumn greenhouse or window decoration. Were it more readily procurable, it would prove to be a most desirable plant for the cottage window. Whether this Fuchsia is a puny form of the hardy *F. Riccartoni*, or a pure species hitherto overlooked in the great struggle after "new and rare" plants, is a question of merely secondary importance. The main point is that it is one of the most distinct and effective of all hardy kinds of Fuchsia, and as such worthy of a far more general distribution than it now enjoys. Nevertheless, if any readers of THE GARDEN will be good enough to tell me the correct name, or any details as to the introduction or history of the plant which may be known to them, I have no doubt

that such information would be welcomed by many others besides myself. Meanwhile I will content myself with its popular name, Tom Thumb Fuchsia. F. W. B.

Winter Bedding with Evergreens.—Some excellent suggestions on this matter are given in THE GARDEN (p. 451). Evergreen winter bedding must soon become more fashionable than it has hitherto been, but the difficulty which many will experience in securing sufficient and appropriate plants for the purpose will, I fancy, debar many from practising the system so extensively as they might desire. For several winters we have filled our flower beds with evergreens in a manner which has pleased everybody, and the plan can be so easily carried out that I am sure anyone who may give it a trial will find it to answer the purpose. In most gardens there are large plants of various kinds of evergreens, which generally require cutting in at this season, and these prunings, when effectively arranged in beds, with their cut ends in the soil, produce such an evergreen flower garden as few rooted plants could surpass. We have just finished filling our flower beds in this manner; some of the beds are filled with little shoots not more than 6 in. high; others have large little-tree branches of finely-berried Holly dotted here and there above the dwarfer material. Some of the circular beds have a finely-shaped well-berried Holly-top as a centre, others have a small Spruce point placed amid other kind of evergreens. Dark berried Holly twigs border a light centre of the same kind and *vice versa*. Any kind of arrangement may be adopted that will suit the beds. If put in now we find that nearly every kind of evergreen will remain fresh far into the spring; or, indeed, until various kinds of bulbs begin to make a display. When the winter has been mild we have often found many of the twigs put in in autumn little rooted plants in spring. At p. 451 mention is made as to the "facility" with which the plants there recommended can be "transplanted;" but I venture to think that should a severe winter follow the transplanting of Hollies and various Conifers at the present time many of them would be likely to suffer severely, especially in the hands of the inexperienced; and I fear there would be a good many deaths during a hot summer were the plants only transplanted at the beginning of it, as they would be where the plants are cleared out to make room for the summer bedders. If rooted plants must be used bushy little plants in 6 in. or 8 in. pots would be best for the purpose. Two or three hundred would fill a good many little beds, and plunging the pots would be as easy a matter as planting, while the chances of being killed through bad planting or weather influences would be removed.—CAMBRIAN.

Extremes of Cold.—At a meeting of the Royal Botanic Society held on Saturday, Col. Platt presiding, the secretary reported the extremes of cold during the month. Skating in the gardens so early in the winter has not been known for many years. Mr. G. J. Symons, F.R.S., reminded the Fellows that there had not been a warm month for two years, and that every month since August, 1878, had been colder than the average. Besides being so cold, the period had been characterised until the end of September, 1879, by a most unusual deficiency of sunshine and excess of rain. The mean temperature of December, 1878, and January, 1879, were remarkably low, and yet the winter of 1879-80 has begun with lower temperature than its precursor. The actual minimum temperatures in the neighbourhood of London had been surpassed in intensity on some previous occasions—for instance on Christmas Day, 1860, and again on January 4, 1867, the temperature of the air at Camden Square fell to 6.7°, and the Christmas Day, 1870, to 14.0°, while this year the lowest point was 16.1° on the morning of December 7. The greatest severity of the late frost was, however, felt further north than London, and temperature below zero—i.e., more than 32° below freezing, had been reported from accurate instruments in many parts of the country.

Half Hardy Plants and Frost.—The present severe frost, following so hastily on a wet sunless summer, will undoubtedly affect many plants that are usually hardy enough to withstand an ordinary winter, when their growth is well ripened by summer heat; but this year the finest and most growing weather which we had was late in the autumn, consequently vegetation was active even until suddenly checked by severe frost. There is one point on which I would warn the inexperienced, and that is, that when thaw comes not to be in a hurry to clear away the withered foliage from such plants as Pampas Grass, Tritomas, or any border plants of similar habits, as from my own experience I know that these natural protectors, viz., dead leaves, are best left intact until all danger of severe frost is over. We all like to see our gardens look neat and trim, but when the life of our plants is at stake, it is better to tolerate a little unsightly rubbish than to leave our garden full of blank spaces for the rest of the year; even a handful of leaves placed around a plant may sometimes save its life.—J. G., Linton.

THE GARDEN FLORA.

PLATE CCXI.—A GROUP OF BEARDLESS IRISES.

Drawn by CONSTANCE PIERREPONT.

EVERYONE knows and, knowing, admires the bearded Irises; but it is not everyone who is aware of the beauty and the delight which may be found in the beardless Irises, a group of which is represented in the plate issued with the present number. In this, as in so many other instances, the popular judgment is founded on reason. Taking them all through, no beardless Iris, not even the *Kämpferi* (the one beardless Iris which has been honoured with the title of a "florist's flower," and which was described and illustrated in No. 406, p. 198) possesses that union of grace of outline with delicacy of colouring, which is the charm of such a bearded Iris, for instance, as *I. pallida*. Yet many of the beardless Irises are handsome and indeed lovely, and they are all worthy the attention of those who love flowers as flowers, and who do not regard plants merely as material for constructing the gaudy or the grotesque patchworks sometimes spoken of as gardens. To the gardener who is also a botanist they have an especial interest, because they are not only much more widely spread than the bearded forms, but in all probability older, that is, earlier in origin.*

Not only are the recognised species belonging to the beardless division more numerous than those of the bearded, but the differences between the several kinds are much more marked and distinct. The bearded Irises are very much alike, and, in giving them separate names, stress has often to be laid on such variable characters as colour and size. The beardless Irises, on the other hand, present a large number of tangible unlikenesses, enabling the very beginner to recognise the differences between the several species. Numerous, however, as are the various kinds, a very little study shows that they may be arranged with more or less completeness into a number of groups, each consisting of central or typical and outlying members.

One group, of which the beautiful unguicularis (or *stylosa*) may be taken as the type, is not represented in the plate, for the very good reason that the members of this group flower in winter or quite early spring, whereas most of the beardless Irises and all those pictured in the plate flower in mid or late summer. I regret this unavoidable omission, because unguicularis is, perhaps, the most lovely of all the beardless forms. Possibly its beauty appears all the more striking, at all events we appreciate it the more, just because it comes to us in the winter. It is an excellent, easily-managed pot plant, flowering readily under glass (in the open it is apt to be cut by the frost), and I would strongly advise those who are the happy possessors of a little greenhouse to obtain from Messrs. Barr & Sugden, or from Mr. Ware, or from some other of the nurserymen who make a speciality of Irises, good, strong, sturdy specimens of this delightful plant, taking care to choose those with the pots crammed full of roots. I think they will not be disappointed. The flowers are not very numerous at a time, but they come in succession; I had last winter a plant which went on flowering from the beginning of December to the end of February, right through that memorable dreary season. Its large and elegant lavender coloured flowers, which, whenever they felt the influence of a little warmth and sunlight, sent forth a delicate and delightful fragrance, brought me consolation on many a dark and dismal day. I well remember that before the Iris flowered

my little greenhouse was nearly filled with *Chrysanthemums*, of whose bloom I, and especially my gardener, were not a little proud; but as soon as my first unguicularis bloom had opened I was impatient until my *Chrysanthemums* had been cast out: its delicate and sweet beauty made me intolerant of the showy, but, compared with it, garish florists' flowers.

A very distinct group is formed by *I. spuria* and its allies. These are, for the most part, tall plants, blooming somewhat late in summer, with erect, rather narrow leaves and close set flowers, and their ripe capsules are strongly ribbed. One of the handsomest of these is *I. ochroleuca*, No. 6 in the plate. The opaque waxen whiteness of its large petaloid stigmas,* closely bent down, as in all the members of this group, over the falls, gives a peculiar charm to the flowers, contrasting as it does with the rich yellow of the falls themselves. The origin of *ochroleuca* is unknown; it exists, as far as is known at present, in gardens only. A variety with the name *gigantea* is highly spoken of. One disadvantage in this group is that the flowers are so close set on the stalk that they have not room to expand, and, as shown in the figure, are tilted up on one side. A gathered cluster makes, however, a very handsome centre in a nosegay; and, as is the case with almost all Irises, the buds expand readily in water. Next to *ochroleuca*, perhaps even surpassing it, comes the allied *I. Monnieri*, a very tall plant coming from Crete, with abundant large flowers of a rich yellow colour. It is one of the latest flowerers, showing a full bloom even when *Kämpferi* has passed away, and has the further merit of being fragrant. The odour is not very powerful but very pleasing. Very closely allied to these is the Himalayan form, *I. aurea*, No. 8 in the plate. This is a very handsome plant, with which I hope soon to become better acquainted than I am at present. *I. spuria* itself, with its many varieties, does not recommend itself to me very greatly. In some of the forms, as in the so-called *spuria major*, and also in the Algerian variety known as *Reichenbachii*, the colouring is bright, and some people might think them handsome, especially when seen in masses; but the mixture which they offer of blue or purple and yellow is to my mind too coarse to be pleasing; besides, there is a certain stiffness and want of elegance in their outlines. I prefer the smaller flowers of such varieties as that known as *desertorum*, with its paler flowers, narrow falls, and, in some cases, marked fragrance, or even the white *Güldenstädtii*, which, however, is very inferior to *ochroleuca*. Some of the *spuria* group are absolutely worthless from a gardening point of view. When you have devoted the best nook in your garden, and unwearied attention to a plant which, in the end, bears, amidst a dense mass of tall, strong leaves, a number of insignificant dirty-coloured flowers, you begin to understand the meaning of the phrase "of botanical interest only." As an outlying member of the *spuria* group, I may refer to the little *I. graminea*, though this is by some authors associated with quite different

* It may, perhaps, be worth while to remind the reader that the flowers of the Iris consists of the following parts: On the outside are the three outer petals or divisions of the perianth, which, since they generally hang or are bent down, are called "falls." Within these, and alternating with them, come the three inner perianth divisions, which, since they are generally erect, are called "standards." In the centre of the flower the style splits up into three stigmas, each of which, broad, highly-coloured, and petal-like, spreads out and hangs over, or sometimes is closely bent down upon the fall opposite to which it is placed. Each stigma terminates in two triangular, often-toothed, sometimes large, sometimes small, flaps, the so-called crests, well shown in many of the figures of the plate. The stigma, in overhanging the fall, gives rise to a sort of tunnel, sometimes with a wide, sometimes with a narrow, mouth, and on the outside of the stigma, at the base of the crests, just at the mouth of the tunnel, is a narrow ledge. It is on this ledge that the pollen must fall to fertilise the plant. Inside the tunnel, lying underneath each arching stigma, sometimes readily visible, sometimes almost entirely hidden, is an anther. All Irises have markings on the fall just at the mouth of the tunnel, for the purpose, apparently, of attracting insects; and the insect, a bee for instance, in entering the tunnel for the purpose of sucking the nectar at the bottom of the stigma and fall, brushes against the ledge of the stigma, and deposits on it the pollen which he has gathered from another plant. The beard of the fall, which leads from the surface of the fall right into the tunnel, seems to be a device for compelling the insect to brush against the ledge.

* I must not enter into this point here, but there are many reasons for thinking that the curious tuft of hairs on each of the three outer petals or "falls," which we call the "beard," is a comparatively late introduction, the first Irises which came into existence being, in all probability, plain beardless ones.



A GROUP OF BEAUFORT IRISES

kinds.* This is of no great value as a border plant, the flowers are too much hidden by the over-topping leaves, and the flowers themselves are singly of no great beauty. Nevertheless their mixed blue and purple tints will be found to render them of value as cut blooms; they can then be made to harmonise most effectually with other flowers.

Next to *I. Kämpferi*, with which the present paper does not propose to deal at all, the most popular, and, on the whole, the most beautiful of the beardless division, are the members of the *sibirica* group. In the typical form, *I. sibirica*, the flowers are, it is true, small, but they are produced in unstinted profusion, and their colouring and marking fully atone for the want of size. Many seedling varieties of *sibirica* of divers colours and tints are to be met with in the nursery-men's lists, all of them beautiful, some of them exceedingly so. The great feature in all of them is the delicate veining and marbling of the falls, as indicated in the white variety represented as No. 5 in the plate; but it is impossible in any lithograph to reproduce the tints and gradations which make up the charm of the living flowers. All these kinds are worthy of cultivation; the only one to be avoided is *I. sibirica* fl.-pl.† Besides the garden varieties, there are many kinds of natural occurrence, such as the form known as *acuta*, with comparatively short flower-stems, and *flexuosa* with white flowers; and stretching away from the type are forms which may be recognised as distinct species. Messrs. Barr & Sugden are distributing a charming plant of this group, with pale and with also deeper purple flowers, under the provisional name of *trigonocarpa*; and Haage & Schmidt have a kind which they call *tenuifolia*,‡ possessing the desirable feature that the flowers emit a perfume like that of cloves. But the one kind which "no garden should be without" is the form known as *orientalis*, No. 4 in the plate, the flowers of which are larger, the falls broader and bigger, and the colouring more intense and deeper than in *I. sibirica*. The red sheath or spathe, moreover, gives the plant a beauty while it is still in bud; few sights are, indeed, more charming than a well-grown plant of *orientalis*, with its flowers partly expanded and partly ensheathed as buds.§

I have not yet had an opportunity of studying as closely as I could wish *I. tenax*, a North American form (No. 2 in the plate), but it is obviously a close neighbour of *sibirica*, and is a very desirable plant; it is now being carefully cultivated and may be obtained from the leading firms.

Allied to *tenax*, on the one hand, and, in many of its features, to *orientalis* on the other, and yet forming the centre of a group of its own, is the Californian form *I. longipetala*. This, the various cultivated specimens of which appear to vary not a little, is a showy plant; but its rather long and straggling falls, in spite of their charming light violet or lavender colour, and their graceful markings, give it a more or less unfinished look.¶ Closely resembling *longipetala* in its foliage and habits, is the form which Regel has introduced under the name of *I.*

spectabilis. It was gathered by his son, Albert Regel, in Central Asia, and, to judge by its name, ought to be handsome. My plants of it have not yet flowered, and I can say nothing more about it, but Regel promises an early description of it.

As the centre of another group we may take the common American *I. virginica*. This is a vigorous floriferous plant, spreading very rapidly when grown in a somewhat moist rich soil. The flowers vary very considerably in tint, and some of the more deeply-coloured forms are not unhandsome. There is, however, a certain stiffness and formality about the blooms which, to my mind, prevents it being considered as a really attractive kind. More highly coloured, frequently very striking from the juxtaposition of a pure white and a deep rose tint, is the very closely allied *I. versicolor*; but this, too, lacks a certain elegance, so that one is, in looking at it, led to wonder why a flower so beautifully coloured gives one so little pleasure. Many seedlings, both of *virginica* and *versicolor*, are in cultivation; and, though what may be perhaps considered as the typical forms of each are very distinct, almost every intermediate stage between the two may be seen.

One feature of the *virginica* group is the small development of the standards, and we thus pass to the very handsome *I. tridentata* (No. 1 in the plate). This, which is also a North American form, can hardly be said to possess any standards at all; they are reduced to insignificant little peaks, which have to be looked for to be seen. In return the falls are largely developed, highly coloured, and manifest real beauty in their form and markings. It is an abundant bloomer, a strong grower, spreading very rapidly, and in every way a desirable plant. *I. tridentata* is an American form, occurring in the Northern States,* but there is found in Asia a closely allied, or at least a strictly analogous form, *I. setosa*, No. 3 in the plate, which, however, is a far less beautiful plant than its American ally. No one who compares *tridentata* with *virginica* can doubt that the two are closely allied, and yet *tridentata* has quite other affinities. In spite of its comparatively broad leaves, many of its features point to the narrow-leaved *sibirica* group, especially to *orientalis*. On the other hand, it is, I think, impossible to overlook its affinities with the *Kämpferi* group; and its beauty seems to be due to the fact that some of the characters of these two groups are added to those of the plainer *virginica*.

Resembling *tridentata* and *setosa* in one feature, viz., in the smallness of its standards, but in reality quite widely separated from them, is the common yellow Flag, *I. Pseudacorus*, a variety of which is seen in No. 7 of the plate. Common as is *Pseudacorus*, everyone who has grown it fairly, will, I think, be ready to admit its beauty. Whoever has in his garden a pond or a ditch, or even a thoroughly damp spot, ought to plant this *Iris* largely. Few things, indeed, are more beautiful than a great clump of this yellow Flag, with the tall leaves starting up from the side of a pool, and the golden clusters of flowers gleaming bright in a midsummer sun. Three things it loves—a rich soil, plenty of water, and abundance of sunlight. It is cruel to place it, as I have seen it placed, in some dank dark hole, where the sun's beams never reach it; it is disappointing to plant it, as I have seen it planted, in a dry and stony spot, where summer is to it one long continued thirst. But put it where its roots can run at will in rich black mud, and yet its head raise itself to the full light of a summer sky, and it will be a golden glory throughout the long days of June.

Such are some of the more conspicuous and common beard-

* The form of the flowers, especially the stigma firmly reflexed over the fiddle-shaped fall, the ribbed capsule, the characters of the roots, and other features are most distinctly those of the spuria group, in spite of its leaves being, especially in the narrow-leaved form, narrower than the other members of the group.

† If any "double-minded" florist wishes to have brought home to him the evil he is doing by his efforts to "double" flowers which Nature intended to be single, let him look at this vile and ugly parody on a beautiful original.

‡ The real *I. tenuifolia*, of Pallas, is something quite different.

§ *Orientalis* is by many regarded as identical with Fischer's *hematophylla*. It is obvious, however, from Sweet's description that the latter is quite a different plant from the former. It is much shorter, smaller, and flowers much earlier. I have not yet come across what has satisfied me as Fischer's *hematophylla*, though I am anxious to do so. The feature which led Fischer to give it the name he did—the red colour of the young leaves and shoots—cannot be relied on for diagnostic purposes; very many forms have the young leaves and first shoots more or less red.

¶ Curiously enough, *longipetala* has an imperfectly developed rudimentary, but still very distinct, crest on the falls; it seems to be a link between the beardless and the crested divisions.

* In the Southern States there grows another form, which in Baker's list is called *tripetala*, and which, from Sweet's description, seems to be a delightful plant. It is more delicate than *tridentata*; its leaves are narrow and linear, not as in *tridentata*, somewhat broad and ensiform. It is found in Florida, and, as far as I know, is not in cultivation in England at the present time. Its re-introduction is a desideratum.

less Irises, but I have far from exhausted the list. I have said nothing of the wide-spread *Iris foetidissima*, worth growing, not for its flowers, which are almost absolutely ugly, but for the bright orange berries of its gaping winter fruit, and still more for its glossy dark green leaves. I have said nothing of the bulbous Irises, which are all beardless forms, and which, save for fear of the anger of the botanists, I would say seem to me even more closely allied to various non-bulbous forms than they are to each other. But I should weary the reader if I said more. Interesting, too, as is the story of their geographical distribution, I must pass that over, and end by saying a few words about their culture.

In nearly all the forms, the one golden rule is that inculcating "wholesome neglect." Let them alone as long as they are doing well, and, above all, do not dig and scratch about their roots. Almost without exception all of them hate to be disturbed, and resent interference by refusing to flower. All of them like the sun. If you care for Irises do not plant them, as they are often planted, right in shade of trees or big shrubs, though some of them, more especially *foetidissima*, will do fairly well there. If you feel that that you are bound to obey the injunctions of the *vade mecum* of gardening by which you swear, and which tells you that Irises are the things for "woodland walks" and "shrubby borders," choose some open glade into which the sun can pour, and not the dark recesses of some leafy cavern. To put the best and handsomest forms, however, in any other position than in the warmest and sunniest spots of the open border is, to my mind, downright wickedness.

They all of them like rich soil, full of decomposed vegetable matter. The coarser and stronger forms will feed on even rank manure, but to the more delicate ones this is almost poison; and all of them, indeed, thrive all the better if their food is given to them in a well-digested form. If it is thus well digested they can hardly have too much of it.

As regards moisture, they vary a good deal. I have already insisted on the necessity of water for *Pseudacorus*, and many of the *spuria* group thrive best in the damp. Others again, as *Monnieri*, hate the damp, at least, in winter, and will stand very considerable drought in summer. The conditions which would suit the majority would, I think, be comparative dryness in winter and an abundant supply of water in summer. Unfortunately, this is the very reverse of what they generally meet with.

They also vary a good deal as to the nature of the soil they like best. Some, such as the *spuria* group and the *longipetala* group, like a deep, somewhat stiff, but rich loam, and their long, thong-like roots reach down for an amazing distance. The *sibirica* group, as also the *virginica* group and *tridentata*, have finer, fibrous, matted roots, and are partial to a lighter, looser soil, which, however, must be proportionately richer in vegetable matter. Hence many of these are grateful for the gift of peat.

Let me end by speaking of one great drawback to these beardless Irises. By far the greater part of them die down completely in winter; and wise are they to do so. Who in the November weather, which has come upon us, does not envy them? Who would not gladly now go into winter quarters, if he could be sure that he would awake strengthened and refreshed as soon as the bitter half of May were over? But their brown withered leaves makes them in the late fall and early winter an eyesore to those who like to have a garden, but who do not love flowers. I mean the people who insist on having a good "blaze of colour," and do not care how the colour is obtained; who, but for the fashion of the thing, would, if they dare speak the truth, be found to be equally content whether the colours were made up of

delicately-wrought flowers and leaves, or machine-made "dummies" of rag and paper. Such people are generally governed by a demon called "tidiness," who arms them with instruments of mischief called "shears" and "rakes," and sends them, when the winter days come on, into the border to "tidy it up." Such people ruthlessly cut down the ripening foliage, just when the loss of the green summer tint shows that the goodness of the leaf is passing into the root; they tear away the dead leaves, and rob the plant of that wrapping with which Nature strives to shelter next year's shoots and buds from the winter blasts; they scarify and scratch the soil, lacerating the tender fibres, of which the plant stands so much in need; they make the surface smooth, carefully removing every scrap of loose nourishment that is lying about, and leave the ground so that the early winter rains may flatten it into an almost polished surface well-nigh proof against all mellowing influences; and having wrought all this wreck, call it order. Whoever wishes to cultivate Irises, or, indeed, any other flowers for the sake of the flowers themselves, must early recognise that Nature is untidy—that dead leaves and a rough soil are the winter forerunners of the summer's bright foliage and abundant bloom. Whoever is unwilling to leave the foliage of the past summer untouched, so that when it has served its purpose the worms may carry it below to enrich and lighten the soil; whoever is unwilling to let his border soil remain rough and open, so that the rain may pass through it, and the gases of the atmosphere be absorbed by it, and the crumbling hand of frost loosen it; whoever is not ready, when occasions demand, to see his border covered all the winter with "untidy" mulching of rich but inelegant "muck," should not take up the culture of Irises. They, like other plants, are meek and unresenting; they will strive to bloom in spite of all his bad treatment; but he will never enjoy the profuse beauty which is the reward of proper treatment. F.

[For the specimens from which our plate was prepared we are indebted to Messrs. Barr & Sugden, who possess one of the most complete collections of Irises known.]

THE FRUIT GARDEN.

STUDDING WALLS.

WHILST the miserable untidy fashion of training fruit trees by means of nails and shreds is properly dying out, it is remarkable that the simplest and most obvious substitute, viz., cast iron studs, is not almost universally employed in place thereof, as these may be put in entirely at the free control of the cultivator, and need not be withdrawn again under any circumstances. Studs have eyes that admit of stout string being passed through them, or any other material strong enough to tie large branches into their places; they may be driven in all over the wall whilst it is new, and these drying in with the mortar or concrete, as the case may be, will become firmer than when driven in later on. Still there is the undoubted advantage that in close trained trees, such as Morello Cherries, Peaches, Nectarines, &c., where it is the rule to lay in a quantity of wood during the summer, these studs may be driven in where wanted, and once in, as has been stated, may remain permanently. Studs projecting only a moderate distance from the face of the wall do not necessitate that the branches of the trees should stand out from the wall, as is the case when wire is employed, leaving a space through which a cold current of air can pass. The value of training trees on walls is to secure the greatest possible amount of heat both from the direct rays of the sun and from radiation, the heated body of brickwork giving off a considerable amount of heat long after the sun has set. It is therefore obvious that the closer the trees are to the wall the greater must be the heat thus obtained; and no doubt many of the evils that come to trees trained on wires, that stand out 1 in. or even more from the face of the wall, arise from this simple fact, that by this mode of training the chief benefit to be derived from the wall is not given to them.

It is worthy of notice also that in driving in these studs they should be fixed sideways to the branches and not crosswise, as by that mode

of fixing the wood can be tied close to the wall and the stud; whilst if driven the other way, the wood, and especially the young wood that needs ripening, is usually tied across the stud. For large branches soft rope yarn or stout string is always available, and for small branches or shoots soft bast or raffia should be used. For fan-shaped trees the studs should be fixed in that form—thinly near the base, and thickly farther from it; whilst for horizontally-trained trees such as Pears, the obvious course would be to fix them in every alternate course of bricks. This plan has all the advantages of the old nail and shred system, and none of its defects; neither has it any of the defects incidental to the wiring plan. A. D.

FRUIT TREES IN POTS.

In October last, Mr. Hawkins, Ewenny Priory, Bridgend, Glamorgan-shire, sent us some photographs of his fruit trees in pots, of which the



Coe's Golden Drop Plum.

Pears weighing $1\frac{1}{2}$ lb. each. Three Cherry trees carried 76 dozen. Pot trees in orchard houses are very profitable, and when in bloom they are a grand sight. The Peach called Prince of Wales has borne 89 very fine fruit, and is now in a 15-in. pot. The tree is twelve years old. Souvenir du Congrès, though a small tree, bore 20 Pears; it is in a 12-in. pot; Durodeau, in a 13-in. pot, 24 Pears. Coe's Golden Drop Plum, in a 13-in. pot, has borne 7 dozen very large fruit. These are not the only ones I have had like this; I have had more than half-a-hundred quite as good."

HOW TO PACK FRUIT.

To assist young beginners who may have had but little experience in the packing-room, we may describe the system of packing adopted by Mr. Coleman, of Eastnor Castle gardens, whose practice affords the best guarantee of the value of his precepts. By adopting similar



Prince of Wales Peach.

three annexed illustrations are reproductions; and along with them the following account of the results of his mode of culture:—"Wall fruit, this summer, has proved to be a complete failure in this part of South Wales. I think it my duty, therefore, to strongly recommend orchard houses and pot trees. We have now had nearly three years of failure out-of-doors with the wall fruits, and they have not paid for the labour bestowed on them. Owing to our situation being low, we get dreadful fogs and white frosts. My idea is that walls would pay better furnished with Plums and Pears. I have two orchard houses filled with trees in pots, and trees on the back wall in my lean-to house, which is slightly heated; but my span-roofed one is a cool house. In both houses I always get a good crop. The trees have only 3 ft. of ground each on which to stand, and yet the Peach and Nectarine trees this year in both houses averaged five dozen fruit each, large and small. On Plums and Cherries there were a great many more. Half-a-hundred trees can be grown in a medium-sized house. As the fruit from one tree is gathered, I place it out-of-doors and give the others a little more room. I have a Plum tree in a 15-in. pot which ripened 154 fine fruit. I have Pitmaston Duchess

means it is more than probable that better prices would be obtained from the fruiterers, who, to say the least, are dependent upon gentlemen's gardeners for a large portion of the best fruit that finds its way to the tables of the "upper ten." In the selection of fruit for this purpose, Mr. Coleman rightly says there are several points that should be borne in mind: one of the most important being the state of ripeness. It is a common error to allow fruit, particularly Peaches, to ripen on the trees before they are gathered, but the season for this valuable fruit having passed by, these may be passed over for the present. Another great mistake, and one that leads to much damage in transit, is the fear of packing too tightly: indeed, the great secret of success rests here. The most tender fruits—be they Grapes, Peaches, or Figs—must never stir in their elastic packing until removed from the box. Another point is, the best time to send. Unless specially ordered, fruit should never be sent later in the week than Friday morning, otherwise there is danger of losing the market; neither should it be entrusted to the delivery companies, as many boxes of fine Peaches and Grapes are injured after they leave the railway terminus. The best and most profitable plan

is to establish business relations with a salesman who feels that it is worth his while to keep the consignor's name on his books, and to be able to depend upon him for some speciality in time of need. Having done this, the salesman should always have notice the day before that a consignment will arrive at the terminus, when it can be fetched by one of his own porters. These experienced men await the arrival of the train, pay the carriage—which should never be paid in advance—and trudge away with anything under 50 lb. on their heads. It is essential to keep faith with the fruiterer, and to telegraph if a box misses the usual train, as time with him means money. Choose through trains if possible, and cultivate the goodwill of station-masters and guards—a trustworthy body of men who are well worthy of recognition. By way of illustration Mr. Coleman tells us he has frequently sent prize-winning Grapes suspended on stands over 100 miles in charge of a through guard. No porter would be allowed to approach the cases during the time they were under the guard's care. When more than one box of any particular kind of fruit has to be packed, and there is any difference in the quality, it is advisable to divide it into firsts and seconds, as the best quality sent in by reliable growers is often sent down into the vaults for some special purpose, and on no account should damaged or imperfect samples be included.

At the present time Grapes are the leading kind of fruit on sale, and these according to the variety require different treatment. For Black Hamburgs and other kinds of similar contour of bunch many large growers use flat baskets that will hold from 18 lb. to 24 lb. each, and four of these, when packed in a case of suitable size with handles at each end, make up a weight that protects them being turned over by the railway porters. For private growers, boxes of uniform size, that will hold from 18 lb. to 20 lb. each, are best. These should be made of $\frac{1}{2}$ -in. deal, 24 in. long, 14 in. wide, and 6 in. deep, inside measure; the lids should be in one piece, and they should be secured with one small nail or screw at each end. The best material for general packing is dry soft Moss, and as this can be obtained on every employer's estate, a large supply should be secured when the weather is fine, thoroughly dried, beaten with sticks, and pulled to pieces with the hands to destroy the harshness and to free it from dust. Having a supply of boxes and Moss at hand, proceed by placing a layer of Moss, 1 in. thick, evenly and firmly over the bottom of the box, line the box, sides, ends, and bottom, with a double thickness of cap paper, and a single thickness of white silver paper, allowing nearly half of the sheets to hang over the sides for turning over when the packing is finished. White silver paper is not better adapted for packing than the ordinary cap, but its purity of colour throws up the Grapes and gives the black a fresh dressy appearance when the boxes are opened. Having prepared and weighed the box, carry it to the Vinery, place it in a slanting position by tilting one end to an angle of 45°, commence packing by placing good bunches in each of the lower corners, keeping the shoulders well up to the level of the sides, select a third or wedge-shaped bunch that will fit in tightly between the other two. Proceed in this way until the box is half full, then raise the box from the stage or table to a sharper angle, and press the branches still closer together; finish cutting, reserving three short clumpy bunches for the last row; return to the Grape-room, take the gross weight, deduct the weight of the box, and write the nett weight on a card. Place the box flat upon a table, get a supply of Moss near the right hand and commence wedging the fruit away from the sides of the box by the gradual introduction of small quantities of Moss into the cavity formed by drawing the three thicknesses of paper inwards. Gradually work round two or three times, constantly drawing the paper inwards until the berries begin to show signs of rising out of the box. Secure the card containing the weight with a small tack. Strain a sheet of white paper over the top. Turn up the paper from the outside and secure the lid. Some gardeners place Moss or wadding over the paper, and thus take all the bloom off the shoulders, and receive for first-class Grapes the price of best seconds. Nothing more than a sheet of paper should be placed between the Grapes and the lid: the steady but firm pressure of the elastic Moss keeps every berry in its place, prevents the loss of bloom by friction, and the stalks, which stand upwards, protect from injury in transit.

Muscats, being more tender Grapes, require more care than Hamburgs, and the less they are handled the better, as any undue pressure or movement of the berries causes them to change colour when they are opened and exposed to the air. They must, however, have sufficient packing to prevent the bunches or berries from moving in transit. If the bunches are very large it may be necessary to use wider boxes, but in no case need they be deeper than those recommended for Hamburgs. Having prepared the box by placing from 1 in. to 2 in. of Moss all over the bottom, line the sides and ends with long strips of wadding folded in silver paper; weigh the box and proceed as before, by tilting one end to a sharp angle. Place a

doubled sheet of paper in the lower angle, allowing two-thirds to run along the bottom; cut the first bunch, removing all faulty berries, and lay it lengthwise across the box; turn up the ends of the paper and draw them with both hands over the bunch towards the lower end. Then take a strip of wadding, 4 in. by 12 in., place it against the bunch to form a division, lay in another double sheet, and proceed by laying the next bunch, with the shoulders in the opposite direction; turn up the ends of the paper as before, and draw the second bunch close to the first. Add another strip of wadding, and repeat until the box is full, when, by raising it to a sharper angle, the weight of the fruit, aided by very slight pressure with the fingers, will make room for another bunch. Fill up all vacancies round the sides by forcing Moss between the wood and the lining; fold the upstanding ends of the paper neatly and evenly over the fruit, allowing it to project over the sides, and enclose the record of the weight as before; secure the lid with two small nails and cord



Souvenir du Congrès Pear (see p. 561).

each box singly, or a pair of them together. Wadding must be used with great care, and on no account be put in contact with the Grapes.

Lady Downes, Alicantes, and other kinds having long tapering bunches, may be treated as Muscats, placing them transversely across the box; but it is not necessary to use wadding or any kind of extra packing between the bunches, as they are less susceptible to bruising, indeed, the tighter and closer these kinds are pressed together the better they travel. Lady Downes, unless very fine indeed, do not require a 6-in. box, but it simplifies and expedites the matter if all the boxes are of one uniform size, and the extra depth may be reduced by increasing the thickness of the layers of Moss on the bottom. The bunches of these kinds that lie transversely across the box should not, however, touch the paper, which should be drawn tightly over the top, and retain its position by being nailed down with the lid.

The keystone of success in adopting the foregoing system lies in the liberal use of dry, soft Moss, the best and cheapest material for

general packing, and this should be forced down between the sides of the box and the paper until it begins to form an arch near the lid. In proof of this Mr. Coleman's boxes might be turned upside down without injury to the Grapes, and he is, we learn, in possession of a photograph of a box of Grapes taken in London five months after they were cut from the Vines. This box was sent by ordinary train, and the bloom on every berry is perfect. Cording is preferable to over-much nailing. A stout cord should be passed twice round the box, not too near the ends, and once lengthwise, for protection and the convenience of the porters. Printed labels and cards, "Fruit, with care; this side up," should always be used. Success is made up of trifles, and no experienced man will doubt the wisdom of Mr. Coleman's suggestions. Extra fine bunches intended for special purposes, and of course forwarded to secure special prices, should, in all cases where through trains are available, be suspended on exhibition stands exactly as if they were intended for exhibition; but instead of leaving a clear space between the bunches, they should be placed quite close together, well up to the top of the board, when intervening spaces near the points may be filled up with small but perfect bunches. A careful person must see them safe in the van, and the porter who meets them must be in waiting for the train on its arrival. This is the method adopted by Mr. Coleman, and we are sure that his practice will commend itself to those who have to send fruit to a distance.—*Gardener's Chronicle*.

GARDENING FOR THE WEEK.

Flower Garden.

Plants in Cold Frames.—The general treatment required for these will depend much upon the season, which this year promises to be severe. For the last three or four weeks all our plants have been frozen stiff; so keen indeed was the frost for a week that some were frozen in hand-glasses over a hotbed, with the steam rising from the fermenting manure outside the glasses that were over the plants, and that, too, with a mat thrown over them at night. It will certainly be interesting to ascertain how Carnations and Picotees succeed after such a winter, that has frozen the soil in the pots as hard as stone shortly after the layers were taken off, and before much of them had time to make new roots; indeed, it is a fact that many of them had no roots at all when potted, and few growers had the means, if they had the inclination, to make up hotbeds to assist their formation. Many growers of large experience would not venture to help their plants to start by putting them into a hotbed; but I have proved that a gentle heat from a bed of fermenting material is of the greatest service in promoting root action, when layers are badly furnished with roots. A violent, or even a brisk heat would be mischievous, but just enough to cause the material in which the pots are plunged to feel warm to the hand, quickens the root action, and is the means of causing the plants to become established before winter. I had been potting at intervals, some six weeks before the frost set in, a numerous selection of hardy Primulas, and other rare and choice herbaceous plants, and on examining them now I find that many seem to have suffered rather severely from the effects of the frost. The leaves of the *Primula purpurea* section have been quite killed, but *P. capitata*, which seems to be hardier than most, has not suffered. Surely this last named kind is something more than a form of *P. denticulata* (see GARDEN, p. 535). That *P. purpurea*, *P. denticulata*, and *P. cashmeriana* are all forms of the same species there is no doubt, but *P. capitata* is so distinct in foliage that it must certainly rank as a distinct and very beautiful species of *Primula*. The outer leaves of nearly all the Auriculas and Polyanthus are killed; but the centres are quite unharmed.

Dahlias.—I had some hope that these were after all well ripened, and that the tubers would winter well, but on examining them last week it is found that they have shrunk up very considerably. I had them immediately placed in boxes, with the tubers just covered with some rather dry sandy loam, and they were then placed in a Vinery in which the atmosphere is kept rather dry, in order to preserve the Grapes that are hanging in it. Those who exhibit Dahlias will scarcely need to be reminded that there is a chance now to overhaul all the boxes, stands, tubes, and blocks, to see that none of them are lost or broken, letting all such be replaced, and the stands should also be painted light green and varnished. When done with, store them where they can be found at a moment's notice. I have previously described the best form of sticks, and have only now to say that they should be washed clean, and be tied firmly up in bundles and put in a dry place.

Phloxes in Pots.—These have been found so useful for decorative purposes that I shall place a number of them in a house from which frost is excluded. My object is to get the plants to start early,

in order not only to produce flowers earlier than they would do out-of-doors, but also to obtain cuttings by the end of February or early in March, so that these also may flower earlier the following season. When carefully attended to these cuttings produce strong plants, which yield good spikes of flowers in 5-in. pots.

Tulips.—These had just been planted when the frost set in, and it is certain that they must have been frozen in the ground ever since. The numerous varieties of named Tulips, as a rule, stand frost well, and they do not suffer from wet, unless it is stagnant water or excessive rainfall; nevertheless, it is questionable if the different species of Tulips are adapted for roughing it, so to speak, in open borders. I have found that *T. Greigi* and *T. stellata* are rather tender, and seem to suffer much during a rainy season like that of 1879. Other plants, however, that succeed well in ordinary seasons were but poorly represented last summer. It will, therefore, be well not to condemn new flowers too hastily, that have only been grown during such a season as the past.—J. DOUGLAS.

Greenhouse.

Epacris.—Although these are strictly greenhouse plants, and will succeed through the winter in a temperature just above freezing, still, where a good stock exists, it will be found useful to have a portion in bloom early, which may easily be accomplished by keeping some amongst such of the greenhouse plants as require the most warmth, say 45° or 46° at night, with something more than this in the daytime. For this purpose those should be selected that made their growth first and were turned out correspondingly early in the open air, as I have always found that these plants at once set their flowers as soon as put outside in the summer, and by this are influenced in their time of blooming. The large-flowered, upright-habited varieties are the most useful for blooming early, and they are also the best for general use, especially for providing cut flowers, as every shoot of the preceding season's growth may be cut without injuring the plants; in fact, to keep the erect-growing kinds from getting too tall and thin, it is necessary to shorten the whole of the shoots to within some inches of where they were cut back to the year previous. It seems strange that there are not more of these most serviceable plants grown than there are, so easy are they to manage, and not subject to get into a bad condition in the way that many of the more tender hard-wooded plants are; added to which their leaves are so stout as to almost defy the attacks of the generality of insects, another important consideration.

Large-flowered and Fancy Pelargoniums.—Those plants of the large-flowered section that were shaken out the latest after being cut back and treated in the usual way, should by this time have made sufficient new roots to permit of their being moved into their blooming pots, which should be about 8 in. in diameter. All Pelargoniums are better hard-potted, but for this section particularly the soil should be made very solid; it should also be in a medium condition as to moisture, and little water should be given until the roots have had time to fully establish themselves. There is no description of soft-wooded plant which makes any growth through the winter that from this time to the end of February requires to be kept with the soil so dry as these and the fancy varieties, without which they never can be grown satisfactorily. They should have all the light possible, and be kept at a temperature of about 40° at night, with a little air every mild day, but not exposed to keen winds. The dwarf-growing, free, early-flowering, decorative kinds so largely cultivated by market growers, and which are the most useful by far for general purposes, as they will bear enough heat through the winter to have them in bloom by the beginning of March, should be kept now at a temperature of 45° or 46° at night, with sufficient warmth in the daytime to permit of a free admission of air which prevents their becoming drawn. As soon as the flowers show freely, which they ought to do by this time, the plants will bear a little liquid manure once a fortnight or so, but they must not have it over strong, or it will cause them to run too much to leaf. They ought to be kept close to the glass in the lightest house available, and especial care should be taken to see that they are free from aphides, on the first appearance of which they ought to be fumigated.

Chrysanthemums this year have suffered through the sunless season quite as much as most other things, and their flowering has not generally been nearly equal to that which is usual; this has been especially the case where the propagation was put off until spring, the result of which always is that the plants never get their wood so well matured before autumn preparatory to flowering, as when they are propagated earlier, and another consequence arising from spring propagation is, that when the plants are struck thus late, it necessitates their being kept warmer during the process of rooting than they should be, during which time they make soft top growth, and the leaves so produced are so deficient in texture that no amount of after attention can keep them from decaying before the plants get

nto flower. It is well to remember that the *Chrysanthemum* is a hardy plant, which neither requires, nor never should be subjected to much artificial heat. If cuttings such as are produced from the base of the plants, choosing those that are stout and not drawn up weak, are at once inserted half-a-dozen together in 3-in. pots, placed in a light position in a cool house, kept moist, and covered with a bell-glass, they will root without getting at all drawn. My practice has been to get some large common slates, lay on these an inch of sand, keeping it moist, and on this place the pots close to the front or end lights of a cool greenhouse or pit, giving a little air at times, but not so much as to cause the cuttings to flag. As soon as they are rooted, pot off singly, and inure them to the air of the house, from whence they may be moved to a cold pit or frame, just keeping them through the winter out of the reach of frost. Those who will give this method a fair trial will find that it is better than leaving the propagation until spring, when there is always enough work that cannot be got on with previously. By the system which some growers adopt of dividing the old plants, and growing these a second year, very large examples may be obtained, but they are not nearly so useful or nice looking as those from cuttings struck annually. If there is any trace of aphides about the cuttings before they are put in I should advise their being dipped in Tobacco-water, which should be allowed to remain on them for a short time, and then be washed off, previous to inserting them in the pots, as I have found that they, in common with most other plants, do not root freely if it is allowed to dry on them. A selection of varieties for general decoration, made, as is often done by the inexperienced, from the stands of cut flowers seen at the exhibitions, is much like that of *Roses* chosen under similar conditions, and is calculated to do anything but turn out to the satisfaction of the grower, as the individual flowers, though fine, are the produce of varieties that naturally are not able to mature a sufficient number of blooms to make them most useful for ordinary purposes. The kinds that bear medium-sized flowers are the most suitable for general pot culture. Of late years few of the varieties find favour, except the globular-formed flowers with incurved petals, though many of the old more open shape are preferable, of which the blush-tipped *Hermine*, and the old pale yellow *Annie Salter*, may be taken as examples. The medium-sized white *Mrs. George Rundle*, with its Primrose-coloured and deep yellow sports, *George Glenny*, and *Mrs. Dixon*, should be grown by everyone, as they stand unequalled in their respective colours, and are remarkably free flowerers. The velvety crimson of *Julie Lagravere* is another of the very best, and the different coloured varieties of the larger-bloomed *Pompones* are also amongst the best to grow in pots, either when the plants are wanted for decoration, or the flowers for cutting. Large perfectly formed flowers, in accordance with the florist's standard, are desirable in their way, but profusion of bloom, with less formality, will always be prized by most people; for this reason, the irregular flowered Japanese kinds should be grown in considerable quantities, being much more elegant, especially for cutting; amongst the most desirable of these are the *Daimio*, pink and rose; *Triomphe d'Hyeres*, orange-red and yellow; *Red Dragon*, chestnut, tipped with yellow; *Gloire de Toulouse*, crimson, sometimes beautifully mottled with white; *Elaine*, white and carmine; *Bijou of Guernsey*, yellow; *Fair Maid of Guernsey*, white; *Madame Lemoine*, primrose and lilac; *Dr. Masters*, red, tipped with yellow; *Harlequin*, crimson with gold stripes; *Soleil Levant*, clear yellow; *Sanspareil*, red; *Robert Fortune*, amber; *Marginatum*, lilac and white; *M. Astier*, red, tipped with violet; *Album striatum*, white, with violet stripe; *Abd-El-Kader*, crimson; and *Jane Salter*, white, striped with lilac.

Succulent and Kindred Plants.—The quaint forms which many of these possess have, of late years, since singular-habited, fine-leaved plants have come more into general cultivation, commended them to many. Numbers of the smaller-growing kinds, seldom met with, are well adapted for greenhouse and conservatory decoration in houses where the largest species of *Agaves*, when these have attained anything like their full size, could not be found room for. They are easily grown, the principal essential being that the pots are thoroughly drained in the first instance, and care always afterwards taken that the drainage does not get foul through the presence of worms, which, like other things they are subject to, and going, as many of them do, for a long time without requiring repotting, these are the more liable to cause the drainage to become clogged up, in which case the succulent roots are apt to rot, and although from the tenacity of life possessed by many of the species this may not kill them, yet it generally results in an unhealthy condition and loss of leaf. Amongst the handsomest are the different forms of *Agave filifera*, *A. Verschaffelti*, *A. Schidigera*, *A. picta*, *A. lophantha*, *A. dealbata*, and others of like habit. With most of these it may be observed that it is well to keep them somewhat warmer through the winter than a cool greenhouse; but they will be quite at home in conservatories, where, as is usual, a little more warmth is maintained. Moderate-sized examples of the different forms of *A. americana*,

both green and variegated, are equally effective used in like manner, and they will bear anything short of absolute frost. These last-named plants are extremely useful for placing in halls, verandahs, or anywhere in proximity to a dwelling-house, as well as in more distant parts of a garden during the summer-time, where their quaint, distinct habit of growth, with their elegantly-curved leaves, adapt them for associating well with other things. *Agaves* are readily increased from the suckers which plants, after they attain a moderate size, generally produce freely. I have usually taken these off any time during the winter, potting them singly in moderately dry soil, and giving no more water than will keep the soil slightly moist until the roots begin to move. *Yuccas* also might with advantage be much more generally employed in greenhouses and conservatories than they are, as, beyond the ordinary variegated *Aloe*-leaved variety, they are not much met with; *Y. albo-spica*, *Y. filamentosus*, *Y. concava*, *Y. glauca*, and *Y. filifera*, are all plants deserving of cultivation where singularity of form is appreciated. The smaller-growing greenhouse *Dracenas*, such as *D. congesta*, *D. lineata*, and *D. rubra*, if grown in quantities, are amongst the best subjects for general decorative purposes that can be cultivated, as it is not alone in greenhouses and conservatories where they are of use; they are equally so for the embellishment of dwellings in the numerous ways in which plants are now employed. Respecting the last-named kind, *D. rubra*, it appears to be comparatively little known beyond the London nursery and market growers; it may be described as having somewhat the appearance of *D. indivisa*, very much reduced in size, both as to the length and breadth of the leaves. It is really handsome, and keeps in good condition much longer in places not well suited for plants, continuing in a healthy state. Any one commencing the growth of these plants cannot do better than get in a stock during the dormant season, when there is usually more time to attend to such matters than in the spring and summer.—T. BARNES.

Indoor Fruit.

Pines.—In Pine pits furnished with hot-water pipes for the production of bottom-heat, the plants require more water than where the heat is produced by leaves or tan. In the latter case very little water indeed is required, but the plants that are grown under the first named conditions will require extra attention in that way during severe weather, when hard firing is a necessity; for if once they get really dry, one of two evils is sure to ensue, viz., premature fruiting, or else, in the case of more advanced plants, improperly developed fruit. A selection should now be made of the finest plants of *Queens* that have had the longest rest; these should be placed in a compartment by themselves in a bottom-heat of 90°, and in a top heat of from 65° to 70°, and they should have a liberal watering with tepid water, which will soon induce them to show fruit that will ripen from May onwards. In many respects this is the most valuable batch of fruiters of the whole year, particularly in the case of those who have to study to get supplies for the London season. Succession plants should still be kept on the resting side of dryness, and if they are becoming crowded, and likely to get drawn from being so close together, spread them out in the room that may be made by throwing away the old fruiting stools, after denuding them of suckers. Plants that are swelling off fruit should have frequent supplies of tepid manure water till the fruit changes colour, when it may be discontinued.

Vines.—Late Vines, being quite clear of foliage, there will be little now to engender a damp atmosphere, particularly if internal borders are, as they should be, covered with mats or dry straw, so that if the fruit has been well ripened, it would keep in plump condition on the Vines for at least three months; but this is undesirable, taking into account the future well-being of the Vines; provision should therefore be made for keeping the bunches in bottles of water, and all should be cut about the second week in January. We have never experienced any difficulty in keeping Grapes in good condition till June, except once, when they were left on the Vines until the middle of February. In that case, when placed in water, the sap having become active by the mild winter of that year, the berries cracked, and, as a matter of course, decayed, so that under no circumstances should harvesting of the fruit be deferred beyond the second week in the New Year; Vines should then be at once pruned and otherwise afforded the proper conditions of rest. Proceed slowly with the forcing of early houses, preferring rather to make up lost time after the Grapes are set than to risk the production of tendrillike "shows" by hard forcing. Pot Vines, if placed, as they often are, close to hot-water pipes, will need a large amount of water. When practicable, it is always best to plunge the pots in a bed of leaves, both to save watering and afford a slight bottom-heat.

Peaches and Nectarines.—Pruning, tying, cleaning of houses, &c., should all be now completed, and the first house may have an advance in temperature, say 50° as a minimum at night, and from 5° to 10° higher during the day, to be increased in mild

weather when ventilation can be given. See that inside borders are well moistened through, and kept so by the application of tepid water whenever necessary. A thick mulching of litter or Oak leaves not only keeps the borders in an equable state, both as to moisture and warmth, but gives off ammonia, which, till the trees come into flower, is beneficial, and prevents the necessity of constant syringing to maintain the proper amount of moisture.

Figs.—As soon as the pot trees that are to yield the first supply of fruit have begun to expand their terminal buds, increase the temperature and air-moisture, and, let the trees have an abundant supply of warm manure water, and in the absence of litter or leaves to give off the desirable ammoniacal vapour, the floors and walls may also be occasionally syringed with the same. Keep the glass clean, and the trees as close to it as circumstances will permit. The earliest planted-out trees may now also be started by the turning on of sufficient heat to maintain a night temperature of 45°. Syringe the trees in dry and mild weather, but the floors and walls only in frosty or damp weather. Complete the pruning, tying, dressing, and cleansing of houses, and top-dressing of borders at the earliest period, and to effectually rest the trees keep them well supplied with air till the time arrives for starting them.

Strawberries.—The plants that are being started on shelves in Vinerias, Peach houses, &c., ought to be regularly syringed till they come into bloom, as a preventive against red spider. It is on this account—liability to attacks of spider—that we prefer to start them in a frame filled with leaves, as recommended in THE GARDEN (p. 512), for though plenty of both top and root moisture will keep away spider, some plants are almost sure to escape notice and get dry, and then its advent is a certainty. When first placing them in forcing quarters examine them to see that the drainage is clear and the balls free from worms. Rub off any mossy vegetation that may have formed on the surface, but on no account break up the surface soil, for to do this is simply to destroy many of the best roots. Those plants that from want of frame room must perforce remain in open quarters should at least have sufficient protection to prevent the pots being smashed by the action of frost, and felt, boards, or tarpaulin should be used to throw off rain and snow.—W. W.

Kitchen Garden.

The severity of the weather during the last two or three weeks has proved most disastrous to the late Cauliflower and early Broccoli crops, for, even in spite of protection, there is but a small per-centage left. Such a fatality can only be accounted for on the ground of immature growth, consequent on the excessively wet and sunless weather, as was the case this season. The only green crops that have survived without injury are Brussels Sprouts, Kales, and Savoys; these, therefore, should in future be planted in larger quantities than hitherto. Now that the frost has disappeared, it will be necessary to go over plots of Greens and remove all decaying leaves. Such vegetable refuse makes a valuable manure when it can be dug in whilst in a green state, but if this cannot be done it should be thrown together and intermixed with a little fresh lime, which will add to its value as a manure. The fact that vegetable crops have suffered so much suggests the propriety of at once taking steps to force additional quantities of Seakale, Asparagus, French Beans, and Carrots, and also of sowing at once in boxes, in heat, Cauliflowers, Brussels Sprouts, and Coleworts; the first-named will keep up a succession to those that were sown in autumn and are being wintered in frames. Brussels Sprouts cannot have too long a season to get them tall and productive, whilst Coleworts are always acceptable, and no green crop can be had so quickly. This crop is the more important, as autumn-planted Cabbages seem to have suffered almost as much as the Broccoli. Potatoes should be carefully examined; all the early seed tubers should be laid in single file to sprout, on floors or shelves, free from frost. Some of the first earlies may now be put in shallow boxes of leaf soil, and placed in frames to start them; and, as soon as fairly rooted into the mould, they should be finally planted in forcing pits or pots; we find the latter a very convenient mode of growing the earliest batch, as they can be moved from place to place as circumstances demand. Myatt's Ashleaf Kidney and Fenn's Early Market Round are both excellent varieties for pot culture. If not yet done, Asparagus plantations should have a thick covering of well-rotted manure, but no alleys should be scooped out to cover it; such a proceeding is not only useless but hurtful. New plantations of Horseradish and Rhubarb may now be made at any time, and established plots should be manured and dug over. Still keep Globe Artichokes well protected, though, if time can be afforded, the protecting material should be removed when there is no likelihood of frost, and again applied on the first indications of it. Let all vacant plots of ground be manured, and dug, trenched, or ridged up as soon as possible, in order that they may have the fullest exposure to the ameliorating influences of the weather. A plan of cropping for the forthcoming season should at once be decided on, and in making it

out see that the various plots have the crops varied as much as possible from those of last year. Taking the same crop twice consecutively from the same ground not only impoverishes it more than it otherwise would be, but the produce is less, the only exception being when the ground is deeply trenched.—W. W.

Extracts from my Diary.—December 22 to 27.

FLOWERS.—Moving *Eucharis amazonica* and a few more *Bouvardias* into the greenhouse. Picking decayed leaves and flowers off *Primulas*. Staking out fronds of *Adiantum Farleyense*; also placing stakes to *Poinsettias* and *Euphorbia jacquiniæflora*. Getting out a few more Roman Hyacinths, and placing them in heat; also a few more *Roses* and *Dielytra spectabilis*; throwing out linings of pits, and turning manure and leaves ready for replacing them. Getting a few more *Azaleas*, *Deutzias*, and *Lily* of the Valley into gentle heat. Erecting stage in late Vinery for bedding plants.

FRUIT.—Fixing shelves in fruit-room for the reception of Grapes in bottles. Pruning *Trebbiano* Vines, and selecting well-developed eyes for purposes of propagation. Tying third Peach house. Pruning Gooseberries and Currants on north walls. Chopping suckers up from Plums and Apples. Cutting down Vines in pots, growing for forcing hereafter, and placing them in a cool Vinery.

VEGETABLES.—Covering up Lettuces with a little hay for protection from frost. Covering up clamps of Potatoes with straw in anticipation of severe frost. Cutting all Seakale and Mushrooms ready for use. Covering up another batch of Seakale on beds outside. Manuring ground ready for digging. Potting next batch of French Beans, and making next Mushroom bed outside. Looking over Asparagus, and getting in next lot. Emptying pit for Rhubarb. Placing succession Lettuces and Endive in Mushroom house to blanch.—R. G., Burghley.

AMERICAN NOTES

The Adornment of Cemeteries.—One of the most beautiful sentiments offered at the shrine of departed relatives and friends is that which keeps beautiful with leaves and flowers the quiet abodes of the dead. It would be well, however, if more taste and knowledge of the habits of plants went with the active devotion of this character often evinced. If the fence monstrosity could be done away with altogether, our cemeteries would be greatly improved; but if the fence must remain, above all things do not crowd the place with stiff hedges of *Arbor-vita* and other large-growing plants. Let an irregular, graceful fringe, or belt, of dwarf evergreen or deciduous shrubs mask the fence with varying outline and somewhat formal repetition, as befits the dignity and regularity of the place. Inside should grow scarcely anything but greensward, with low growing vines and flowers wandering about with modest freedom. If here and there a shrub is used, it should be of the rarest mould and dwarfiest form—choice bits of arboreal sculpture rather than mere foliage and flowers. The taste exhibited in the ornamentation of burial grounds cannot be too severe, chaste, and refined. Flowers we may have, but they must grow and bloom within limits, and the colours and forms of evergreen and deciduous trees, for both summer and winter landscape, must blend deftly and harmoniously, lest anything *bizarre* mar the peaceful nature of the spot. And, in addition to all this, let me say that in no species of lawn planting does the importance of intelligent pruning, fertilising and watering apply with such force as in that pertaining to God's Acre.

Magnolia Fraseri, the Ear-leaved Umbrella Tree, is found in Virginia and Kentucky, along the Alleghanies and southward, though but sparingly. This blooms in June, bearing yellowish flowers, and sometimes again in autumn. It forms a small tree, and is therefore well adapted to small lawns. The seeds are always scarce.

The Japanese Eulalia.—The tall and lovely Grass, called *Eulalia japonica variegata* in the catalogues, blooms so late that the panicles often have their development arrested by frost, but this time they have shown what they can do if let alone. Our circular clump, 10 ft. or so across, is a dense mass of the pale variegated foliage, and 6 ft. or 8 ft. high, above which the feathery panicles, at first dark purplish and then light grey, wave their spray-like branches in pleasing contrast, making the mass most attractive to passers-by.

Wanted a Word.—It is a pity that there is no word in common use that comprises both agriculture and horticulture. If we speak of the *Rural* as an agricultural or farm journal, we feel we do not do it justice, since it gives as much attention to horticulture as to agriculture, and the constant use of both words is out of the question. It does not seem that the word *terraceutical*, though the right

one by derivation, will ever come into general use. To speak of terracultural colleges, stations, and newspapers, would sound funny enough. Horticulture is properly garden culture, but it is now accepted as including fruit culture, and flowers, shrub, and ornamental tree culture also. We want one popular word that shall comprise everything that is meant by both agriculture and horticulture.

Tomato Progress.—We find that several of our readers, accepting our suggestion, are working to produce a variety of Tomato that shall keep better than any at present known in the market. One of our friends in Ohio has a cross between the Acme and Trophy that will keep well for from fifteen to twenty days. We ourselves have been selecting seeds for two or three years with this object solely in view. In another season we hope to be able to report our progress. In breeding for a better-keeping sort, we should never lose sight of productiveness, and that quality, so valuable in the Acme, of ripening about the stem.—*Moore's Rural.*

The Yellow Clematis.—Those who only know the Clematis from the magnificent Japanese and Chinese hybrids, which, with their enormous flowers from 4 in. to 6 in. or more across, may be regarded as among the triumphs of modern horticulture, can hardly be aware of the great variety which the genus presents. Not all the Clematises are climbers, as there are some herbaceous species valued as border plants. Among the climbers, besides the grand hybrids already mentioned, are others so strikingly unlike these, that one would not at first sight take them to belong to the same genus. Some of these we have noticed from time to time, notably the scarlet Clematis (*C. coccinea*); this represents a group the flowers of which do not spread open, but the sepals form a sort of urn-shaped flower. Then there is a group with quite small flowers in large clusters, producing a profusion of bloom; of this group there is none better than the Virgin's Bower or Traveller's Joy. Resembling this in appearance is *C. flammula*, the Sweet-scented Virgin's Bower, a name it well deserves. In still another group, we find flowers of medium size, and solitary, upon long stems, in the axils of the leaves. To this group belongs *Clematis graveolens*, the flowers of which, something remarkable among these plants, are yellow. The plant is rather slender and delicate, having less robust stems than the other climbers. The foliage, of a fresh and pleasing green, is more finely cut than in the other species, each leaf consisting of three to five sharp-pointed leaflets which are themselves cut or lobed. The flowers are solitary, of only four spreading sepals, and are about 1½ in. across; their colour is a pale Lemon-yellow. This plant, coming from the higher mountains of Chinese Tartary, is a comparatively recent introduction. As may be inferred from its origin, it has proved perfectly hardy in the severe climate of New England, and this, together with its delicate habit, its very free growth, and the unusual colour of its abundant flowers, will make it very popular when it becomes better known. It blooms in late summer, and its flowers are soon succeeded by globular clusters of fruits, the long feathery tails to which are of a very pale green, and about as showy as the flowers. The specific name, *graveolens*, means "heavy-scented," the applicability of which is not readily seen (or rather smelt), as we have not been able to discover a perceptible odour, heavy or otherwise. "Heavy-scented Clematis," sometimes given as a common name, is not a very pleasing one, besides it is quite too long, while "Yellow Clematis" is preferable in several respects, and is more-over descriptive.

Osbeck's Sumach.—This has pleased me much by its generally robust aspect, and the healthy vigour of its dark, thick leaves. The plant is a native of Japan, and has been called, in some European Continental gardens, *Rhus japonica*. I came across it several years ago at Ellwanger and Barry's. Its leaves resemble those of our native dwarf Sumach (*R. copallina*), in having the common petiole winged between the leaflets, but are much larger, and without the shining surface of the other. Prof. Sargent informs me that it flowered with him this year, and that it is still more attractive in bloom. In autumn it takes on yellow, orange, and scarlet tints, which are blended into every intermediate shade, and all with a brilliancy and richness of colour that, should I use adjectives to adequately describe it, I should seem extravagant, while the printer would use up all his exclamation points and get "out of sorts."—*American Agriculturist.*

Mr. Chapin's Great Orchard.—We have noticed in this journal (*Country Gentleman*) in former years the extensive Apple orchard of Mr. Oliver C. Chapin, of East Bloomfield, in Ontario County, N. Y., covering over 100 acres. The editor of the *Rural Home* has recently paid it a visit, and furnishes some additional particulars. A part containing 50 acres has been seeded three years and pastured by sheep. The exterior of the orchard has borne well this year; the interior but little. The canker worm commenced its roads, and was worst last year on the interior trees. Mr. Chapin

showered them with a mixture of Paris green and water, which brought them dead to the ground in a few hours. The water was drawn in a box holding over 200 gallons, in which was mixed 2½ lb. of Paris green. A forcing pump and hose threw a stream high above each tree, where it broke into spray, and falling sprinkled every part. The whole orchard contains 120 acres. No heavy crops have yet been raised. One year he picked 7000 barrels. There are over 5000 trees. The estimate this year is over 3000 barrels. When the growth of the tree is rapid, he seeds to Clover for a few years, and ploughs it under, which appears to answer well. He cultivated constantly when the trees were young. Most of his orchard is planted with the Baldwin.

The Scuppernong Grape (*Vitis rotundifolia*).—Some years since I abandoned all Grapes except this kind, which I find to be the only one exempt from disease. I have now quite a large quantity of it under cultivation, having raised a large number of seedlings. It is a white or yellowish Grape, with berries varying in size from ¾ in. to 1¼ in. in diameter. None of the varieties I have ever fail to produce good crops, and the Vines are entirely free from disease in Vine, leaf, and fruit. The weight of fruit on each Vine is beyond belief by those who have never seen this class in full bearing. I have this season had arbours crushed down with the great weight of the fruit on them, although they were built of good, stout Chestnut fence rails. Some Grape growers complain that the clusters are too small; this is not so; each Vine is a huge cluster in its entirety. t



Tuber formation in *Tropaeolum tuberosum*.

In gathering them when ripe, they are shaken down on to sheet made for the purpose, instead of being picked by hand, as is the case with the cluster varieties; and in 50 bushels of the berries, which are gathered entirely free from stems, one would not find a rotten or imperfect berry. My Vineyard, which is a small one, has this year yielded about 4 gals. of "must" or juice per bushel of fruit. I have one Vine, a seedling from the Scuppernong, raised by myself, which will compare very favourably in quality with the Black Hamburg, while the berries are from 1 in. to 1¼ in. in diameter, of a black colour, speckled with russet. This class of Grapes always bloom about the 15th of June, and consequently the clusters are never injured by frosts. The growth of the fruit is very rapid, the crop being ripe by Sept. 25. Could not this Grape be cultivated in Vineries at the North? It is killed to the ground when the mercury gets to zero. I have one variety that ripens the last of August. It is a fine, large black Grape, also a seedling from the Scuppernong. Vines of this class are never pruned, and rarely manured or cultivated. The roots running an inch or two below the surface of the ground, cultivation is entirely impracticable, and the leaves from the Vines furnish most of the manure they get. Stable manure is death to the Vines, while they delight in lime and decayed vegetable matter. Another peculiarity is that the Vines cannot be propagated from cuttings, as are other varieties, but only from layers, so that it is a slow process to increase them.—*Country Gentleman.*

TUBEROUS-ROOTED TROPEOLUM.

(T. TUBEROSUM.)

THIS species, which is tolerably well known, is a rampant climbing plant, and when planted near the foot of a warm wall, or trained up a fence of brushwood, it forms by no means an inconspicuous object.

It is quite hardy, but a heap of ashes over its tubers affords it congenial protection during winter, and enables it to sprout away with renewed vigour in spring. This *Tropæolum* attracted attention some years ago as being one of a rather long list of plants from time to time recommended as substitutes for the Potato. My present object in alluding to it, however, is to direct more particular attention to its bulb-tubers, or underground stem development, and I am sorry that I have not tubers of other allied species of *Tropæolum* at hand so as to study them by comparison. What I want particularly to point out is the intermediate character of these tubers, and the distinct manner in which indications of scales are shown. From these tubers we gather that both bulbs, as in Lilies, and tubers as in this *Tropæolum* and in the Potato are shortened or compressed stems, the leaves or foliolar organs of which are thickened and consolidated into scales, which, in the true Lilies, are free or ununited, but are, in what are termed tubers, fused together into a solid mass just as the wax model of a Lily bulb might be fused by gentle pressure in the hand if held before a fire. In the case of the Potato the identity of the scales is well-nigh lost, but if the green above ground or axillary stem-tubers of a Potato be examined, their condensed stem-like character becomes more clearly apparent, since the rudiments of leaves are sometimes developed by them, and what we call "eyes" are seen to be the true axillary buds of a short plethoric branch of the main stem. The tubers of this *Tropæolum* are beautiful in themselves, being of a soft yellow tint, prettily and distinctly marked with purple; moreover, they show the narrowness of the line which divides the bulb proper from the tuber so well that a figure of them may be of some permanent interest. I am indebted to Miss C. M. Owen, of Knockmullen, Gorey, Ireland, for the materials from which the engraving has been made, and I should be obliged if anyone will spare me tubers of any other species of this

genus for purposes of study and comparison. The whole question of underground stem and root development is so important, from a cultivator's point of view, that one may be excused for regretting that it is not more generally studied and alluded to in garden literature. As shown in the annexed engraving, the tubers are clustered on the lower part of the stem; each tuber springs

from the axil of a former leaf or its representative, and so each tuber clearly represents a branch of the main stem, which, with its foliolar organs, is shortened, thickened, and fused together so as to represent a tuber.

F. W. B.

Flowering spray of *Tropæolum tuberosum* (reduced)

Does Ivy Injure Buildings.—This question has been many times asked. In my monograph on "The Ivy," I treated it at some length, and with the aid of evidence adduced in an important inquiry as to the effect of Ivy on the fabric of English churches. My friend M. Sisley, of Lyons, informs me of neighbours of his who actually dread to plant Ivy near the walls of their dwellings, from the apprehensions they entertain of consequent damp and injury to the structure. So long as such opinions prevail it cannot be too often repeated that the attachment of Ivy to walls is altogether an advantage. If the walls are damp before the Ivy is planted, the damp will disappear as the Ivy overspreads their surfaces. If the walls are dry to begin with, Ivy will keep them so, by a double action; for should dampness occur through some accident, the Ivy will suck out the moisture into its own substance, and in the event of driving rains, that occasionally act with force on walls, the imbrication of hard leafage will prevent the access of rain to the structure, and thus Ivy is not only a remover, but a preventer of damp. As regards the integrity of the structure, however, the case is less clear. Fissures in walls clothed with Ivy will sooner or later be discovered by

the plant and filled up, and then mischief may be expected. When a shoot or root pushes through a fissure in a wall and is left undisturbed, its natural growth soon begins to tell upon the structure. As the little Nut tree carried the millstone, so the slender shoot of Ivy will by increase of girth begin to push against the sides of a fissure, with the certainty of increasing it, and the probability of bringing the wall down. But where the wall is sound it is exposed to no such

danger. Ivy does not make fissures, however quick it may be to discover them where they already exist. It follows therefore that, as a rule, Ivy may be regarded as defending against time and accident the walls that afford it support.—S. H., in *Gardener's Magazine*.

TREES, SHRUBS, AND WOODLANDS.

VARIETIES OF THE NORWAY MAPLE.

PERHAPS if the mass of persons wise in tree planting had to choose one tree as combining most beauty and hardihood, they would select the Norway Maple. In fact this very selection has been made by a vote of just such authorities. That the Norway Maple in its natural form is excellent in every way desirable for a tree is unquestionable, but at this time I wish to call attention to the corresponding value of its varieties. I wish to note that in no way do they fall short of the excellence of their parent, but that, on the contrary, they even surpass in certain ways their worthy progenitor. The variations of most hardy plants assume one of two or three types. They are either variegated in colour, or cut-leaved or weeping in form. Varieties of Norway Maple never weep, as far as I know, but they do divide and colour their leaves in very curious as well as delightful fashions. Let us look at a few of these varieties:

Acer platanoides cucullatum is the least varied of the cut-leaved forms of the Norway Maple, but its large round leaves are curled down at the edges in a very striking manner. In general growth it closely resembles the ordinary Norway Maple, as indeed do all the varieties I shall name.

A. platanoides laciniatum, popularly called the Eagle Claw Maple, is perhaps the best known of the different forms of Norway Maple. Fine specimens occur here and there throughout the country, although even yet this noteworthy tree receives little attention. The term "Eagle Claw" fairly describes the form of its leaves, which constitute its chief peculiarity. Plated curiously, curled, and somewhat compressed, the leaves are evidently claws. Yet the leaf is not properly *lacinated*, or cut-leaved—hardly enough to secure a moderate amount of actual claw. At some distance, however, the claw-like effect is striking and interesting. Of course, such a tree as the Eagle Claw Maple, though decidedly marked in form, needs the position of a single specimen, that it may worthily exhibit its charms without being lost in a mass of somewhat similar foliage. This arrangement, indeed, suits all the peculiar forms of Norway Maple. Otherwise, if it be desirable to associate them with a group of the parent species, they should be planted a little without the mass, each one distinctly by itself.

A. Lobergii exhibits the most extreme type of the cut-leaved form of Norway Maple. The leaf is literally divided into several parts down to the very leaf stem itself. Indeed, one might readily mistake these sub-divisions for actual leaves, instead of parts of one leaf as large as that of the ordinary Norway Maple.

A. Schwedleerii, the most charming variety of all, adds to beauty and breadth of outline the attraction of vivid colour. And what colour! It appears on the leaf in early spring, and flushes the young growth with red until late in June. In August, again, and September, there is a glow of red and purple amid the pervading dark green tints. The contrast thus made is remarkably striking and agreeable. It would add doubtless to the charm of *Acer Schwedleerii* if it continued green throughout July, but it is well known that the variegations of leaves can seldom resist the subduing effects of midsummer suns. The purple Beech does no better at that season than *Acer Schwedleerii*, and to class the latter kind with the purple Beech for rich and permanent colouring is certainly high praise. Perhaps my expressions of admiration may seem a little overwrought, but I believe all who have looked at the right season on *A. Schwedleerii* will bear witness to the truth of my assertions. It is, in fact, an excellent tree in every way—as excellent as its parent and far more lovely; not that the attractions of its parent on the lawn are not of the highest order.

As a street tree, the Norway Maple is perhaps too round-headed—too heavy in the quality of its shade. This peculiarity would, of course, apply to all its varieties. Nevertheless, general experience has fully proved both species and varieties to be good and attractive ornamental trees under all circumstances. The smoke and dust of the city, and the winds of the plain and sea, alike fail to overcome their rugged endurance. Everywhere, in fact, the Norway Maple and all its varieties transplant well, and endure persistently the most trying ordeals a tree can be expected to endure and live. In growth, the Norway Maple and its varieties establish that healthy medium which indicates enduring strength and beauty, combined with active vigour.—*Country Gentleman*.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Hydrangea rosalba.—I cannot refrain from speaking briefly of a *Hydrangea* accidentally met with during a recent visit to the Central Park. While wandering about a wild rock garden on a hillside in the upper part of the park, near Mt. St. Vincent, a friend pointed out a mass of large, resplendent corymbs of rosy-crimson flowers which were borne by a plant of strangely unfamiliar appearance, and yet one that we felt we ought to know. Soon afterwards, however the name dawned on the mind of my friend, and we both recognised an old acquaintance seldom seen in flower, viz., *Hydrangea rosalba*. We attributed the existence of the flowers in this case to the very sheltered, dry position the plant occupied. Thus favoured, the wood had fully ripened, and consequently passed through a severe winter unscathed. The bloom also had developed with peculiar excellence under the favouring peculiarities of the place. Few in this climate ever see the flowers of *Hydrangea rosalba* at all, blighted as it is by ordinary winters.

Magnolia Thurberi.—I fear a hardy Japanese *Magnolia* that has been termed *M. Thurberi*, must give up this cognomen for that of *M. Kobus*. It bloomed this year for the first time with us, and the peculiarities both of the appearance of its flower and time of flowering, agree very closely with the description given of *M. Kobus* by M. Maximowicz and others.

Acer polymorphum.—Query: Shall we term the many-formed Japanese Maples *polymorphum* or *palmatum*? There are authorities for both specific names, and they are used interchangeably. I believe they should all be termed *polymorphum* or all *palmatum*, and that the question is only to be settled by discovering which name was employed first by competent authorities. I could make a shrewd guess that *palmatum* was the original name, but facts are wanted. Thunberg seems to have used the name *palmatum* many years ago, according to Loudon, and doubtless it will be necessary to go back more than fifty years to settle the question, new as many fancy these Japanese Maples to be.—*Rural New Yorker*.

Large Hawthorn.—We have a fine Hawthorn tree growing in the park here, the best, indeed, I have ever met with, and different from all other Hawthorns, inasmuch as it has a fine pyramidal shape and large foliage. Even when bare of leaves it is a fine specimen; its blossom is single white like that of the common Hawthorn, but, as I have said, the habit is different from that of all others growing around it. The height of the trunk is 6 ft.; circumference at 1 ft. from the ground, 6 ft.; spread of branches 30 ft. one way and 36 ft. the other; height from 35 ft. to 40 ft.; age fifty years, or rather more.—W. DIVERS, *Wierton, near Maidstone*.

Welbeck Abbey.—The grounds at Welbeck seem to be literally undermined. Extending in all directions from the Abbey are burrows or passages; not mere borings, but lofty, spacious passages, brilliantly lighted by costly apparatus for letting in sunlight, and, where sunlight cannot be admitted, by lights from gas. By an underground passage we come to the celebrated riding school, the like of which is not to be found in Europe, or elsewhere in the world. It is entered by a trap-door, opened by means of a curiously-designed crank in the passage. In the days of the Duke of Newcastle it was used as a riding school; now it is a magnificent museum of art over 180 ft. in length. Hundreds of pictures are arranged—not hung—round the gallery, and piled in stacks on the floor are thousands of volumes of books, some modern, and many old, rare, and valuable. The floor of this gallery is of Oak, and the ceiling is made to represent a brilliant midsummer sky. Mirrors in profusion are placed about, and light is shed from four chandeliers suspended from the roof, each weighing a ton. This apartment is lighted up by over 2000 gas lights, and when all are illuminated the effect must be extremely brilliant. There are some miles of passages under the grounds. One extends from the Abbey half way to Workshop; another was used only by the Duke of Portland. The passages are all broad enough for three people to walk abreast in them, and pleasant to walk in. The library, like the picture gallery, is underground, and is the work of many years. It is divided into five large rooms, and so arranged as to form, when desirable, one very large room. This library is 236 ft. long. Another immense and superbly constructed room has been erected underground. At one end it is approached by a spiral staircase, and at the other by subterranean passages. Church or ballroom? It would do admirably for both. It was begun five years ago, and is left in an incomplete state. There are many of these rooms at Welbeck. They are free from draughts, admirably lighted, magnificently decorated, and all very costly. Comparatively few outbuildings are to be seen. The most remarkable is the new riding school, a building of gigantic proportions and of extraordinary beaut

The walls are of solid stone, and the roof of wood, iron, and glass. It is nearly 400 ft. in length, and 100 ft. wide, and divided into a great centre and two aisles. The central department is decorated with a frieze of painted brasswork representing birds, beasts, and foliage, and of perfect workmanship and elegant design. It is 50 ft. high, and lighted by 8,000 gas jets. Here the Duke took pleasure in seeing his horses exercised. The "works" are marvels. He employed constantly upon them over 2,000 workmen. In fact, Welbeck was like an industrial village.—*Sheffield Telegraph*.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

DECEMBER 16.

At this, the last meeting for this year of the Fruit and Floral Committees, the following First-class Certificates were awarded:—

Oncidium Edwardi (Buchan).—A rare and newly-introduced Orchid, reminding one of *O. ornithorhynchum*, but the flowers are larger and of a deeper shade of colour, with a yellow crest on the lip. The flowers, moreover, emit a powerful and very agreeable perfume resembling that of Violets, which materially enhances their value.

Cyclamen Baroness Burdett-Coutts (Smith).—A fine variety with pure white flowers of large size, exhibiting great substance and breadth of petal. The foliage, too, is handsomely marbled with silvery markings.

Chrysanthemum M. Lemoine (Jackson).—This novelty represents a medium-sized Japanese variety possessing the peculiarity of two colours; the outermost florets are yellow, and the inner are of a deep bronzy-red. The contrast of these colours is very striking, and renders the blossom very effective.

One of the most attractive features of the meeting was the magnificent group of Cyclamens, which were shown by Mr. H. B. Smith, Ealing Dean Nursery. Every plant shown was well grown, and the whole group comprised a great variety of colour from the purest white to deep purple. Besides the variety Baroness Burdett-Coutts mentioned above, there was another variety named Earl of Beaconsfield, which represented a blush-tinted blossom of large size and fine form, having a rich crimson base. To these a silver medal was appropriately awarded. Mr. Ollerhead, gardener to Sir H. Peek, Bart., M.P., Wimbledon House, exhibited a group of the ordinary Poinsettia, with a similar number accompanying it for comparison named *P. pulcherrima rosea*. The colour of the bracts of the latter were a shade or so lighter than the ordinary kind, but they were certainly not rose-coloured, and, moreover, did not present such a bright cheerful appearance. From Mr. Miles, West Brighton Nursery, Cliftonville, came a dozen or so of plants of a fine scarlet zonal Pelargonium named West Brighton Gem. It has a good compact habit and apparently very floriferous, and a cultural commendation was accorded to the exhibitor. Mr. Cannell, of the Swanley nurseries, sent some well-grown examples of White Vesuvius Pelargonium, which well exemplified its high merit as a decorative kind. One of the plants bore unmistakable evidence of its origin by having a truss of scarlet flowers produced on the same branch as the trusses of white pips. Mr. Cannell also showed half-a-dozen trays of cut trusses of the leading varieties of zonal Pelargoniums, which were highly attractive; also blooms of *Dahlia imperialis*, and a beautiful *Salvia* named Pitcheri. Mr. Green exhibited, from Sir George Macleay's garden at Pendell Court, Bletchingley, cut blooms of the rare *Dahlia Maximiliana*, which is probably the first time that it has been exhibited. Allusion is made to this plant in another column. Mr. Green also showed a very finely-grown *Saxifraga valdensis*, one of the crustaceous-leaved kinds. The plant forms a dense cushion-like tuft, fully 8 in. in diameter. Colonel Trevor Clarke showed a flowering plant of the Scarlet Pine-apple, doubtfully named *Ananassa bracteata*, but which was apparently *Pourretia flexilis*. It has long scarlet central leaves and a tuft of somewhat inconspicuous flowers. It is a showy plant, and recommended for general cultivation, on account of its easy culture and low temperature in which it will thrive. Mr. Noble exhibited a stem of *Lilium giganteum*, measuring 13 ft. high, and bore during the past summer twenty-two flowers. It grew in his nursery at Bagshot in a prepared border in the open air. Mr. J. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, exhibited some new varieties of Cyclamen. One, named Improved Purple Gem, was an unusually deep purple flowered variety; the other was Crimson Model, a fine novelty, with blossoms of a pleasing brilliant tint. The same exhibitor also showed a collection of cut blooms of Chrysanthemums, consisting of the Incurved,

Japanese, Pompon, and Anemone-flowered sections, and all of which, notwithstanding the lateness in the season, were excellent examples of skilful culture. A similar contribution came from Mr. J. W. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston-on-Thames, and were also well grown specimens. Messrs. Jackson & Son, Kingston, exhibited four varieties of Japanese Chrysanthemums, viz., Meg Merrilees, a fine yellow kind; Incomparable, with bronze flowers; Middle Moules, with pure white; and M. Lemoine, mentioned above, which was awarded a certificate. Mr. George, Putney Heath, sent a well-flowered plant of Abutilon Rose Queen, with blossoms of a rich orange tint veined with crimson; and Mr. Balchin, Hassock's Gate Nursery, Keymer, exhibited *Bouvardia Dazzler*, a variety much in the way of Hogarth, but apparently with larger flowers. In addition to the *Oncidium Edwardi* mentioned above, Mr. Osborn, gardener to H. J. Buchan, Esq., Southampton, sent a plant of *Odontoglossum Lindenii*, a rare but not very showy species.

Fruit and Vegetables.—The former was more plentiful than usual on this occasion. The chief point of attraction was the huge bunches of Gros Guillaume Grapes exhibited by Mr. Roberts, gardener to the Countess of Charleville, Tullamore. The bunches weighed respectively 22 lbs. and 20 lbs., and were over 2 ft. in depth and as much across. Both bunches were grown on one rod, and the Vine from which they were cut, has in four years produced 7 bunches weighing in the aggregate 126 lbs. 11 oz. Some excellent examples of Grapes were shown also by Mr. J. Wallis, gardener to the Rev. Walter Sneyd, Keele Hall, Stafford, consisting of Golden Queen, Black Alicante, Gros Colmar, Black Morocco, Barbarossa, Lady Downe's, &c. A silver medal was recommended for this collection. Mr. Atkins, gardener, Lockinge Park, Wantage, contributed a similar collection, consisting of excellent bunches of Muscat of Alexandria, and the same exhibitor also showed a dozen dishes of Apples and Pears, several of which were seedling varieties. Some fine smooth Cayenne Pine-apples were sent by Mr. Goodacre, Elvaston Castle, Derby. A cultural commendation was accorded to Mr. Hinds, Canford Manor, Dorset, for excellent dishes of Tomatoes, and a sample of a fine late Pea (Hallamshire Hero) was sent by Mr. D. Abbott, Sheffield.

ANSWERS TO CORRESPONDENTS.

Hardy Herbaceous Plants.—I am about to fill a number of oblong beds, 12 ft. by 16 ft., with the above plants, preference being given to those varieties that are most useful for cut flowers. The soil is a good one, but, owing to the position of the beds it is necessary that the occupants should not exceed 3 ft. in height at the most. Will you kindly give me a list of the most suitable plants for the purpose?—H. J. C.

<i>Aquilegia cerulea</i>	<i>Delphinium</i>	Cashmeri-	<i>Lychnis Haageana</i>
<i>cerulea hybrida</i>		anum and dwarf	<i>Oenothera Fraseri</i>
<i>chrysantha</i>		florists' varieties	<i>fruticosa</i>
<i>chrysantha hybrida</i>		nudicaule	<i>Papaver bracteatum</i>
<i>Allium McNabianum</i>	<i>Dictamnus</i>	<i>Fraxinella</i>	<i>alpinum</i>
<i>acuminatum</i>	<i>Dodecatheon</i>	<i>Jeffreyanum</i>	<i>Pentstemon gentianoides</i>
<i>Anemone Homorine</i>	<i>Meadia</i>		<i>Hartwegi</i>
<i>Joubert</i>	<i>integrifolium</i>		<i>glaber</i>
<i>pavonina</i>	<i>Dracocephalum austriac-</i>		<i>speciosus</i>
<i>hortensis</i>	<i>lum</i>		<i>Polygonum alpinum</i>
<i>Aster Amellus</i>	<i>Erythronium</i>	<i>Dens-canis</i>	<i>Phlox ovata</i>
<i>bessarabicus</i>	<i>Gaillardia</i>	<i>aristata</i>	<i>carolina</i>
<i>Astragalus monspessula-</i>	<i>Gentiana asclepiadea</i>		<i>Rudbeckia speciosa</i>
<i>nus</i>	<i>asclepiadea alba</i>		<i>Newmanni</i>
<i>dasylotidis</i>	<i>Geum coccineum</i>	<i>fl.-pl.</i>	<i>Spigelia marylandica</i>
<i>Armeria cephalotes</i>	<i>Hemerocallis flava</i>		<i>Saxifraga cordifolia</i>
<i>Asclepias tuberosa</i>	<i>fulva</i>	<i>fl.-pl.</i>	<i>crassifolia</i>
<i>Brodiaea grandiflora</i>	<i>disticha</i>	<i>fl.-pl.</i>	<i>Senecio pulcher</i>
<i>Betonica grandiflora</i>	<i>Hesperis matronalis</i>	<i>fl.-pl.</i>	<i>Sparaxis pulcherrima</i>
<i>Campanula Van Houttei</i>	<i>Iris germanica</i>	<i>vars.</i>	<i>Spanish and English Iris</i>
<i>Verschaffelti</i>	<i>sanguinea</i>		<i>Sedum spectabile</i>
<i>Coreopsis tenuifolia</i>	<i>siberica</i>		<i>Spiraea palmata</i>
<i>lanceolata</i>	<i>Kniphofia Uvaria</i>		<i>venusta</i>
<i>Chelone obliqua</i>	<i>Macowani</i>		<i>Aruncus</i>
<i>obliqua alba</i>	<i>Liatris elegans</i>		<i>Trillium grandiflorum</i>
<i>Lyoni</i>	<i>spicata</i>		<i>Trollius europæus</i>
<i>Cypripediums</i> (all hardy	<i>squarrosa</i>		<i>asiaticus</i>
kinds)	<i>Lilium</i> (all the varieties)		<i>Fortunei</i>
<i>Camassia esculenta</i>	<i>Lobelia cardinalis</i> & <i>vars.</i>		<i>Tropæolum polyphyllum</i>
	<i>Lychnis Sieboldi</i>		W. G.]

Raising Seedling Briers.—*Rosa*.—Gather the hips of the Dog Rose as soon as ripe, about the end of October or beginning of November, choosing those that are long-shaped, and neglecting those that are of a rounder form. Open the hip and collect the seeds; rub them a little, and winnow or sift them so as to get rid of the down that adheres to them. Next throw them into a vessel of water, when the good seeds will sink and the bad float. Collect those that are good, and having mixed them with sand, store them in a pot covered over with a piece of glass, to protect them from mice till wanted. Sow in favourable weather during the months of November and December, or in the spring. Prepare a bed, rake over the surface evenly, and on it spread $\frac{1}{2}$ in. of sand, smoothing it with the back of a spade; then sow and cover the seeds with $\frac{3}{4}$ in. fine earth. To protect them from frost, and also to hasten their growth, it is well to spread over the whole bed about 6 in. of dried leaves, to be removed about the beginning of April, if weather permits. The young plants should appear above ground in April or May, and by the end of October will be well grown with shoots 2 ft. or 3 ft. Thinning and transplanting must be attended to as the plants grow.

Celery Maggot.—*K. T.*—These, when fully grown, descend into the earth, where they remain in the chrysalis state till the following spring, when they

appear in the form of flies, and, in due course, deposit their eggs on the leaves of the Celery plants. The best remedy is to crush the maggots between the finger and thumb as soon as they appear. Sprinklings of soot along the rows help to keep the flies off, perhaps by making the plants distasteful to them. Watering with a weak solution of Gishurst Compound and Tobacco has been recommended, and is worth a trial (2 lb. of the former and 1 lb. of the latter to a barrel of water, and when thoroughly intermixed to be poured over the foliage with a roset pot). Trying to stamp out the pests by burning plants or leaves effected is also a good plan where it can be carried out.

Double Grafting.—Allow me to say that I had occasion a few years ago to graft a Prince Albert Pear growing on a southern wall, the fruit of which was useless for dessert. Amongst other sorts some grafts were taken from an espalier tree of the Seckle. This year grafts of the latter have borne fruits quite three times the size of those generally grown on the espalier, and of the richest colour. A few weeks ago a dish of these Pears was exhibited at our local show, where they were seen by several practical gardeners, all of whom pronounced them to be much superior to any which they had before seen of that variety.—J. ALLAN, *Ashurst Park, Tunbridge Wells.*

Adiantum Farleyense. M. P.—You will find directions for cultivating this in another column of to-day's GARDEN. Of the white deposit on the leaves kindly send us specimens.

Books.—*Cosham.*—There is no good English book that we know of on practical nursery garden work. *Sub.*—Quin's "Garden Receipts" contains a chapter on skeletonising leaves.

Names of Plants. B. G.—3, *Adiantum reniforme*; others next week. —W. B. *Rhamnus alnifolius*.—F. N. R. *Antigonon guatemalensis*.—F. G. —1, *Oncidium cheiroporum*; 2, *O. bracteatum*; 3, *O. crispum*.—C. B. The pink flower is *Barkeria elegans*; the other was too much damaged to recognise. —S. D. T.—1, *Retinospora plumosa*; 2, *Abies* sp., but cannot name correctly from such a scrap; 3, *Thuja gigantea*; 4, *Cryptomeria japonica*.—*Decon.*—1, *Passiflora princeps*; 2, *Lasiandra macrantha*.—R. Q.—1, *Libonia floribunda*; 2, *L. penrhosensis* (these are distinct plants); 3, *Justicia (Peristrophe) speciosa*.—*Enquirer.*—Your specimens damaged beyond recognition; they should be sent in a strong box.—C. J. P.—1, *Thunbergia laurifolia*, a stove climber; 2, a species of *Ipomoea*, but cannot name with leaves.—*Ferns.*—1, *Nephrodium molle*; 2, *Davallia dissecta*; 3, *D. Mooreana*; 4, *Asplenium bulbiferum*.

Questions.

Questions Respecting Roses.—I. Which are the three most perfect Roses as regards form, substance, shape, habit, and scent in the following colours:

A. Hybrid Perpetuals and Bourbon Roses.

a. Pure white. b. Tinted white, blush and flesh colour. c. Pale pink and light rose. d. Bright pink and deep rose. e. Carmine. f. Scarlet and vermilion. g. Purple and crimson. h. Dark crimson, brownish and blackish maroon. i. Violet. k. Striped.

B. Teas and Noisettes.

l. Pure white or slightly tinted. m. Bluish and pink, rose. n. Tinted pink and rose. o. Pale and bright yellow. p. Yellow tinted.

II. Which are the three most beautiful Moss-Roses?

III. Which five varieties of Roses are the greatest favourites and the most generally cultivated in any particular district?

IV. Which five Roses distinguish themselves especially? a. through their uninterrupted blooming; b. through superior scent; c. through their hardiness.

V. Which five Hybrid Perpetuals are the freest and most abundant bloomers. a. for the summer; b. for the autumn?

VI. Which are the ten best Roses for forcing?

VII. Which five varieties are best adapted for room cultivation?

VIII. Which are the three most beautiful pillar Roses?

IX. Which ten novelties from 1873 till 1878 are of such remarkable beauty that their cultivation and distribution can be recommended without the slightest hesitation?

X. Which are the best ten English raised Roses?

The aim of this list is to reduce the four or five thousand different varieties of Roses at present grown in gardens to a limited number of really valuable ones only. All answers should be sent post free to my address and be accompanied with the distinctly written signature and full address of the sender in order to make it possible to communicate the result to him. To each variety should be added if possible the name of the raiser and the year of its introduction. The printed result of this election of Roses will be communicated gratis and post free to all horticultural papers and correspondents who have taken part in it.—FRIEDRICH SCHNEIDER, President of the Horticultural and Agricultural Society at Wittstock a/D., Germany.

TAILED RADISHES.

AMONGST the novelties exhibited at the great International Horticultural Exhibition of 1866, few things attracted more attention as such than the group of *Raphanus caudatus*, or Long-tailed Radish, exhibited by Mr. Bull. Plants in pots some 3 ft. in height, tied up to stakes and bearing some three or four pods of an irregular appearance, from 18 in. to 20 in. in length, constituted a novelty, which it was stated was destined to supersede root Radishes of all kinds, and render us no longer dependent upon crops that were uncertain, and good only at specific seasons. Like many other introductions, however, from which much is expected, the Rat-tailed Radish has done neither of these things. Nevertheless there is much in the lengthy and curious seed pod to render it attractive to the palate, as it is, when young and produced by quick growth, sharp, crisp, and brisk, tasting very much, indeed, like the veritable Radish itself, but of course always lacking that fleshy character that is inherent in our favourite breakfast root. The *Raphanus caudatus*, however, was not an absolute novelty in 1866, as it was first introduced into this country in 1815, and is a native of Java. It may be grown freely in the open air in summer, sown in rows thinly, and the plants, as they grow, should be supported by sticks to keep the pods from the ground. It

may also be had in early spring and late autumn in pots, if sown and grown so as to produce fruit at either of these seasons.

As an edible product, however, this Long-tailed Radish is inferior in several respects to the pods produced by common Radishes, and especially to the pretty and most abundantly produced pods of the Long White Californian Radish. These, which are about 2 in. long, including the short tail or pointed end, are, when young, crisp and pleasant eating, and offer the best possible substitute for the root Radish that could be obtained during hot dry weather, when the true Radish is usually tough and flavourless. These short-tailed pods are also most acceptable for pickling purposes, either mixed with other vegetables or employed alone; and being naturally of a pretty green hue, they are far more presentable than many things of a similar character. The Californian Radish is perhaps the strongest grower of all the edible rooted kinds, and therefore produces robust growth and an enormous quantity of pods. As a deep rooter it also retains these longer in that crisp tender state so desirable when eaten green. By sowing seed in August, strong roots may be had that, if lifted and stored in sand or otherwise protected from severe frost, are most acceptable in mixed salads during winter; and the roots not so used, if planted out again in spring, will give a crop of pods early in summer. A sowing made in a row during April will give a large crop of pods in autumn, and, if the soil be deep and rich, will, with frequent gatherings, produce abundantly for a couple of months.



Rat-tail Radish.

All Radishes might properly be designated "tailed," but the term so far has been solely applied to the long-podded section. How many sorts of good root Radishes there are (or perhaps it would be better to say how few) was well shown by the exhaustive trial that was so well conducted at the Royal Horticultural Gardens at Chiswick during the past summer. The report of this trial is well worthy the attention of all young gardeners, and the addition of these few notes upon the Tail-podded kinds will not detract from its merits. A. D.

How to Prevent Lettuces Running to Seed.—A German contemporary says running to seed can be avoided by drawing a knife through one-half of the stem to which the head is attached. The sap—or, as they call it in Germany, the milk—will flow, and rob the head of the power to open; yet enough sap will remain to keep it fresh and growing for another week or so.

A New Pea.—There was exhibited at the Sheffield Chrysanthemum and fruit show (Nov. 24th), a rather remarkable new and white wrinkled marrow Pea, named Hallamshire Hero, and raised by Mr. Abbot. It was shown in a green state, both on the dish and on the haulm, and had been gathered regularly up till the 15th of November. The pods mostly contained ten to eleven Peas to the pod, and these of the largest marrow size. Having been subjected to sharp frosts, they had rather lost their sweetness, but I was assured by those who had tasted the Pea at its best that its quality was first rate. Not long before the show a dish of it had been served up at a dinner provided for the Sheffield Gardeners' Mutual Improvement Society.—J. S. W.

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"This is an art
Which does mend Nature: chance it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FILMY FERNS.

THE information given (p. 548) by Mr. Neill Fraser is most interesting; the Killarney Fern (*Trichomanes radicans*), *T. reniforme*, *Hymenophyllum demissum*, and the solitary specimen of *Todea superba* which we at present possess are growing in just such a sunken, unheated pit or frame as he describes, the only protection during frost being a covering of bracken, on which bast mats are spread. Last winter 22° of frost were recorded here, and even this winter already these Filmy Ferns have been frozen over and over again, the earth in which they grow being now as firm as a stone, and yet the plants look fresh enough. The greatest care required is to keep the sun from them while in this frozen state. Plants of the Killarney Fern were long ago grown here in holes in the open border, in a compost of peat and Moss, a hand-light being their only shelter, except during severe frost, when loose Fern or an old mat was thrown over them. At Glasnevin one of the most interesting of all the plant houses is that especially devoted to Filmy Ferns and their allies. These plants, like most aquatics, resist frost wonderfully well.

Mr. Fraser's recommendation ought to induce many to attempt the culture of these delicate Ferns under glass shades in the dwelling-house. Mr. A. Balfe, of this city, has a healthy Killarney Fern growing on pumice stone, &c., in a small pan covered by a glass shade, and this plant, which is in excellent condition, has been an object of attraction and interest to all who have seen it during the last twenty years. Plants like these are of interest to all, and that their beauty is permanent the above reference will abundantly show. A specimen of the New Holland Pitcher Plant (*Cephalotus follicularis*), also grown in a small pot, plunged in a larger vase, and covered with a glass shade, tilted so as to allow of ventilation, is a worthy companion to the delicate tracery of the Killarney Fern. Both plants grow thus well in the ordinary temperature of a drawing-room, a warm covering being thrown over the glasses during very cold nights. The idea of offering prizes for Filmy Ferns is an excellent one, and would no doubt soon be the means of inducing many to take up their culture. Our stock of *Todea superba*, as I have said, is vested in one fair-sized specimen, or I should be glad to try it under a glass in a shady window and with every confidence of success.

F. W. B.

Bell's Bridge, Dublin.

HELIOTROPES AND THEIR CULTURE.

HELIOTROPES, sweet scented and beautiful as they are, are well worth the attention of all who have a greenhouse and a little heat at command. They are favourite market plants, and wonderfully well they are grown in the form of compact little bushes, covered with flowers, in 5-in. pots. A good way of growing them is as follows: About the end of July procure some good soft-wooded cuttings, making them like those of other soft-wooded plants, then insert them in pots or pans in a mixture of light soil and silver sand; place them in any close, shady frame, keeping them moderately moist, and they will soon root. When this happens pot them off into small thumb or 3-in. pots, using good light soil, and replace them in the frame. Keep the latter close for a few days, and then give plenty of air on all favourable occasions. As soon as the little plants have grown about 3 in. long, pinch off the tops of the shoots, which will cause them to break freely and form pretty little bushes. As soon as possible shift them into large sized pots, and keep a sharp look-out for green fly and also for red spider and thrips, to all of which they are subject—syringing with Tobacco water; this is better than fumigation, as that is apt to injure the foliage. About the end of September place them in their winter quarters at the warmest end of a greenhouse, and in about a month a portion of the plants may be moved into their blooming pots (5-in. ones), using on this occasion a somewhat heavier soil, and well draining with potsherds; the remainder should be repotted at various times so as to keep up a good supply of fresh plants.

The principal point to be attended to in their winter management is never to allow them to become dry at the root, and to prevent all cold draughts of air from striking them, keeping them comfortably warm, say in a temperature of from 50° to 55°, otherwise they become sickly and stunted, lose their leaves, and become of little value, as the great beauty of the plant, in addition to its

flowers, is the foliage, and, like the Fuchsia, if it once loses this it cannot be replaced. Syringe occasionally with Tobacco water, which will keep down insects. About Christmas the earliest plants may receive their final stopping, and be encouraged to grow on as much as possible. A little weak soot-water is very beneficial to them, and they should be kept near the glass.

About the end of February they will require tying into shape; place one stake in the centre, and loop the branches round it in the form of a compact little bush. March having arrived, when the sun becomes bright, a little shade for a few hours in the middle of the day is beneficial. Give abundance of water at the roots, and ply the syringe freely with clean soft water to the branches. Early in April they will be in great beauty, and may be removed to any place which they are required to decorate.

Young plants coming on will require, in all respects, similar treatment, and with judicious management *Heliotropes* may be had in bloom nearly the whole year round. One of the best kinds in cultivation is still the sort called Florence Nightingale.

HENRY BAILEY.

Fuchsia Tom Thumb.—I am afraid this term is a general one applied to diminutive forms of various genera of plants. The Fuchsia that in these parts has within the last twenty years assumed the above name is one that I have carried from place to place for above thirty-five years. It is not half the size of the one represented (p. 561). My pigmy I first obtained as Thompson's *pumila*; keeping out of sight the species *microphylla* and *thymifolia*, it is the neatest and smallest of all Fuchsias. Many years ago there was a very small Fuchsia, similar to the one depicted, known as *serratifolia*, years before the large one of the fulgens type came into notice. It seems strange that most of the old Fuchsias, such as *coccinea*, *gracilis*, *conica*, *globosa*, *Thompsoni*, *corallina*, &c., should be in confusion as to their specific characters, being as they are often assimilated as one or hybrids; even the true Fuchsia *coccinea* is a plant not often seen. The labours of the hybridist must always be a perplexity to the scientific botanist.

—THOMAS WILLIAMS, *Ormskirk.*

Anætochili.—Mr. O'Brien seems to have struck the happy medium as regards the culture of these plants, by not subjecting them to the excessive heat usually given them, and by steering clear of the cold treatment formerly advocated by a few who have tried it and failed. At the Pine-apple Nursery there are about twenty-four varieties of *Anætochili* and *Goodyeras* all in good condition. The plants are in a case in a warm house, on a side where there is a little bottom-heat, but a false bottom is put in the case, so that the plants have the advantage of being brought near the glass, and at the same time have a cold bottom to stand on. Mr. O'Brien believes that keeping *Anætochili* close and hot at night oftener kills the plants than anything else.

Odontoglossum hebraicum.—This rare *Odontoglossum* is now in flower in the Pine-apple Nursery. Its blossoms are somewhat similar to those of *O. Andersonianum* in size, but in form approach more nearly to *O. navium*. The petals are lemon-yellow, nearly white towards the middle, spotted with brownish-scarlet, the dark yellow flush at the base of the lip, and the snow-white column giving the whole an attractive appearance. Its transparent texture will make it a valuable decorative plant. The flowers are strongly cinnamon scented.

The Gladwin (*Iris foetidissima*).—Quantities of this old fashioned British plant are now coming into Covent Garden Market. The brilliant orange-red seeds which line the inner surfaces of the pods render it very effective for room decoration, &c., at this season, and it is also extremely useful in flower borders. It grows vigorously in damp places, and the variegated leaved kind is well known as a handsome plant, both for the open garden and also for indoor decoration, where it has a fine effect under artificial light.

Wild Autumn Berries.—There are several wild fruits which ripen in autumn, and which are very pleasing when employed for home decoration. The ripe fruit of the Barberry is gathered quite largely for preserving; but it is also useful in an ornamental point of view. A long branch of it with its clusters of bright red berries hanging upon their long stalks, is a "thing of beauty," and when arranged with autumn leaves and dried Grasses, is a joy through the winter to every eye that sees it. In pleasing contrast with the dark-scarlet fruit of the Barberry is the Red Cedar, with its dark evergreen branches, sprigs of which, when full of lead-coloured berries, form a pleasing element in house decoration. For red, again, the Winter-berry, which is better known as Black Alder (*Ilex verticillata*), is one of the most attractive shrubs, with its profusion of intensely bright scarlet berries, which cling tightly to the slender branches. The common Sweet Brier (*Rosa rubiginosa*) and other wild Roses, furnish bright and attractive scarlet hips—they are not properly berries—which are well worth the gathering, as are also

those of garden Roses. The Sumachs bear large dense clusters of small scarlet-crimson or purple berries. The Stag's-horn Sumach (*Rhus typhina*), and the smooth Sumach (*Rhus glabra*), are both common, and their berries differ in colour with their degree of ripeness. A few of these clusters help to set off the green of the Cedar. Among many others, there still remain two kinds which should not be overlooked. The Burning-bush or Spindle tree (*Euonymus atropurpureus*) is a tall shrub which bears deeply four-lobed, light-red capsules peculiarly attractive, hanging as they do on long slender stems. These soon open and expose several seeds, each of which is enveloped in a dark red pulp. More brilliant than either of the above is the Wax-work or climbing Bitter-sweet (*Celastrus scandens*), a woody climber, which is beautiful as regards foliage, but in autumn, when the orange-coloured pods throw open their three valves or parts, and expose the scarlet pulp which surrounds the seeds, they are exceedingly attractive. In the vicinity of villages and cities, scarcely a pod is allowed to ripen; they are gathered by boys and others, who sell them in little bunches on the streets.—*American Agriculturist*.

Varieties of *Lælia anceps*.—Among the large importations of this Orchid which Mr. Bull received some time ago, there has been several very distinct varieties. In addition to the pure white-flowered kind mentioned last week, we saw, a day or two since, another lovely variety in flower, which is quite unlike any we have yet seen. Its flowers are about the size of those of the type, with the sepals pure white, the petals a delicate soft blush tint, and the lip of a rosy hue crested with gold.

***Habrothamnus fasciculatus*.**—Though this is by no means an uncommon plant, the extreme beauty of the large specimens of it in flower at the present time that are planted out in the Temperate House at Kew renders it necessary to direct attention to it as one of the most valuable of greenhouse plants for winter decoration. Its long clusters of deep pink blossoms are highly ornamental, and when they are accompanied by bunches of rich carmine berries, the effect is thereby much enhanced. The unusually long time during which it continues to produce flowers is another point in its favour, combined with the simplicity of treatment required by it. *H. elegans* and *H. corymbosus* are also desirable kinds, but the species under notice is decidedly the best.

***Acacia retinodes*.**—This is one of the earliest flowering of the hosts of species now in the Temperate House at Kew, its pretty pendulous branches of sulphur-coloured flowers, produced early in November, rendering it a valuable subject for cutting from. Grown in the ordinary way in pots, and placed in a cool greenhouse, it is very effective, and it will continue to flower throughout the winter. Many of the other species at Kew will shortly be in flower, and so give the house a cheerful appearance.

***Tigridia conchiflora*.**—We understand that Mr. Stevens, King Street, Covent Garden, has received a large consignment of this showy bulbous plant to dispose of shortly. Though scarce, and by no means so plentiful in this country as the other Tiger-flower, *T. Pavonia*, it is equally gay and attractive, the large bright orange-yellow flowers being copiously spotted with crimson. It requires similar treatment to *T. Pavonia*, and it is quite as floriferous, especially when planted in favourable positions.

Scotch Champion Potato.—We omitted to mention in our report of the last meeting of the Royal Horticultural Society that the committee awarded a first-class certificate to this Potato, which was shown by Messrs. James Carter & Co., High Holborn, on account of its good quality and disease-resisting property.

Chinese Primulas.—Messrs. Cannon and Reid, of Aberdeen, send us blooms of a pretty strain of Primula, the colour of which is a delicate rose, with a distinct yellow eye. The flowers, too, which are large, have finely fringed margins.

Keeping Apples.—Mr. B. Hathaway describes, in the *Michigan Farmer*, his mode of keeping Apples. Those which incline to wilt, like the Russets, are put in barrels. The more juicy sorts, as the Northern Spy and Greening, are placed in crates, where they will have more air. The Apples are stored in an outside cool place till freezing weather approaches, when they go to the cellar. This holds 1500 bushels, and leaves space for work and passages. The fruit room occupies the whole cellar, which admits of better ventilation than if a portion is partitioned off at one side.

***Fontanesia Phylliræoides*.**—I note this shrub not only because it is a valuable and neglected plant, but because it is somewhat remarkable for being tender in England and apparently hardy in America. It is related botanically to several well-known shrubs, like the Forsythia and Lilac, and has attractive foliage, not unlike some varieties of those genera. The flowers are yellow and not specially striking, but they bloom in August, which is a decided advantage. With these qualities in view, this *Fontanesia* should be borne in mind by lawn-planters.

COUNTRY SEATS AND GARDENS OF GREAT BRITAIN.

PARK PLACE.

ENGLISH gardens are often on level ground or embosomed in valleys, and all the better for it, perhaps, on the whole. But the hills that, so far as building and making gardens went, were neglected by our forefathers are now here and there valued as they deserve to be; and very charming it is after lazily admiring the many pleasant lawns and gardens along the Thames and in the valley to creep up these high river hills, and then, coming out on the Grassy top in the cooler air, see one of the loveliest and most extensive of English landscapes. High downs, yellow fields of corn, green meadows, open breezy lawns in the foreground, and bold Cedars near, were parts of the elements of a picture—as fair as can be found in any country. When the foreground is made up of a park in which plenty of Grassy breadth is preserved, and also stately vegetation and gradually receding views at many distances far beyond the river, as well as the river scenery, it is then there is a combination of beauty which is rarely to be met with.

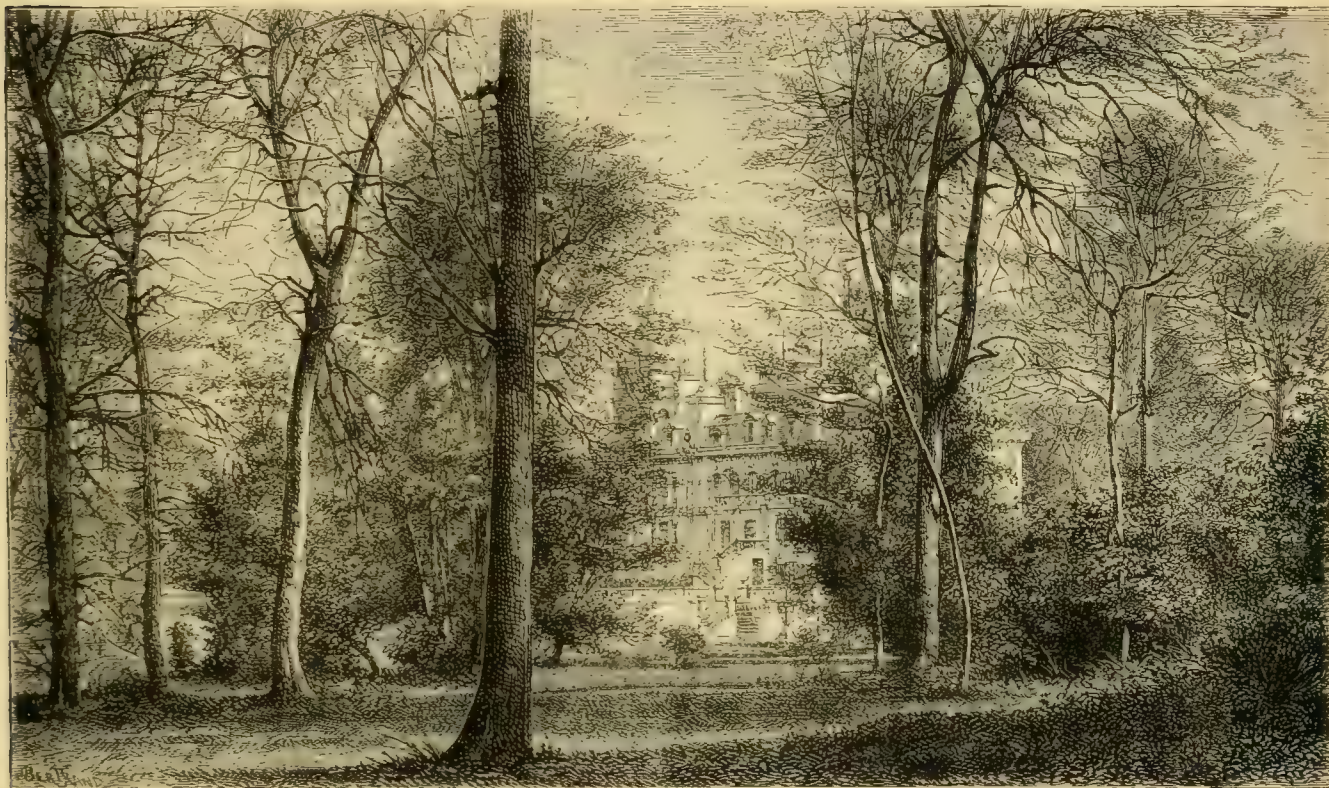
This is indeed one of the most naturally beautiful and picturesque places on the banks of the Thames. After crossing the river by means of a fine stone-built bridge, the whole distance to the house is uphill, but after the first gate lodge is reached, we have a well-contrived drive that winds its way through the hanging woods for a considerable distance. It is somewhat circuitous, the object being to make its ascent as easy as possible. The frequent views obtained of the distant country make its course cheerful and interesting. On emerging from the woods an open view of very wide extent and variety suddenly presents itself, and the house is soon afterwards reached. Its principal front faces the river, but it stands nearly 300 ft. above it. From this point the views in almost every direction are very fine, extending over large tracts of Surrey, Hants, Berkshire, Buckinghamshire, and Oxfordshire.

This estate was formerly the residence of Frederick, Prince of Wales, and of another Prince of Wales, afterwards George IV. General Conway then purchased it, and to him it owes many of its most interesting features. After his death, Lord Malmesbury became its owner, and made many alterations and additions to it. It subsequently came into the hands of the Maitland family, who occupied it for many years, and likewise did much to improve and adorn it. For a period after this, it became somewhat dilapidated, when it was purchased by its present owner, Mr. John Noble. Within a few years the house has been almost entirely rebuilt, considerable additions in the French château style having been made to it. Mr. Marnock, who laid out Mr. Noble's other place at Berry Hill, has well used his great experience and knowledge in the improvements at Park Place, everything tending to promote its beauty, whether considered in relation to architecture or gardening, having been done thoroughly. While having, however, so much to praise about the place, there is one feature which seems to us not desirable for imitation—a mosaic flower garden formed after the outline and pattern of a vase. Such an object may be skilfully carried out, and may excite admiration for this character from persons who do not consider how such a stamped garden affects the view from the house of the beautiful things around and beyond. The hard and very artificial character of this mosaic garden makes it far from attractive to those who do not care for elaborate geometry out of books or patterns.

In addition to ordinary "bedding," Alpine, and sub-tropical gardening, there is here a rich collection of herbaceous plants. Spring gardening is also extensively practised, no empty beds being seen either in winter or spring. The glass department, like other parts of the establishment, is on a large scale, there being few things worthy of cultivation that do not receive attention. Long ranges of Vineries and other fruit houses produce for their age very heavy crops. The whole of the Vines were raised on the place from eyes struck in turf on the system recommended by Mr. Wm. Thomson, and with most gratifying results. A mode of growing Bananas (*Musa Cavendishi*) is practised here very successfully. They are planted out in an ordinary

the glasshouses and other buildings are occupied with plants adapted for such positions, and although sometimes with varying success in respect to hardiness, yet, on the whole, with satisfactory results.

The wants of the young gardeners employed at Park Place have not been overlooked. A picturesque building has been erected for them, with large, comfortable sitting-room, kitchen, and lavatory lighted with gas, and a separate bed-room is provided for each. Adjoining this is the garden office and Grape room. There is also a garden library, and a botanical class is held here in connection with the Science and Art Department, the gardener (Mr. Stanton) being one of the Department Science teachers. At the last examination held



In the Gardens at Park Place ; view from Grove.

house, and fruited regularly and quickly ; the fruit is excellent in flavour, wholesome, and forms a valuable addition to the dessert. The clusters of pips produced vary in weight from 35 lbs. to 45 lbs. Several other tropical fruits are also ripened here. Plants are very extensively grown, and occupy the greater part of the glass. They are not grown as specimens for exhibition, but of a size to make them useful for conservatory and general decoration. *Eucharis*, *Anthuriums*, *Gardenias*, *Stephanotis*, and winter-blooming plants of all kinds are grown in quantity. Upwards of 600 Tree Carnations of the best varieties are grown here for winter bloom and for bouquets. All the best climbers are planted out, and thus treated form a striking feature, particularly in the tropical house, where they are allowed to ramble to a certain extent at will about the roof. All bare pieces of wall on the outside of

in the gardens ten certificates and three Queen's prizes were awarded to the young gardeners.

The conservatory attached to the house is of considerable size, and may be said to form a part of the fine suite of rooms with which it is connected. The principal object was to unite a house for plants with an enjoyable room, a combination not always accomplished with satisfaction, but in this case eminently so. As a plant-house, experience has shown that many, both fine-foliaged and flowering, plants will succeed in it, although considerable labour and attention are necessary to maintain its effectiveness ; and, as an enjoyable room it is as much used as any in the house. It is capable of being lighted with sixty-three gas jets on certain occasions, but in an ordinary way much fewer are used. These lights, being considerably above the plants, do not affect them as

might be supposed. The effect of this house, though much better than that of the ordinary conservatory, is not quite so good as that of houses where the vegetation is planted out in a picturesque manner.

A few words about the water supply may be interesting. That for the garden is most complete and convenient. Paradoxical as it may appear, yet although each separate house has its tanks, there is not a single tap connected with the arrangement, each tank fills itself and cannot overflow. The water supply to the house comes from a great depth out of the solid chalk, and although destitute of all organic impurities, is of course what is termed hard water. To remedy this, Dr. Clark's softening process has been adopted with great success. This consists in an admixture of a proportion of lime-water with the natural hard water. The former extracts the chalk, and precipitates it to the bottom of the reservoirs, rendering the water as soft as rain-water. The pumping is done by means of a gas engine of 2-horse power, which answers admirably and is economical.

The park surrounding the house consists of hill and dale, woods and Grassy slopes, traversed by shady walks, left to a great extent to Nature's keeping. The whole place abounds with wild flowers, and of rare ones not a few, constituting in reality one great pleasure garden. From the river in many places perpendicular chalk cliffs run up and meet the hanging woods and open glades for a considerable distance along its banks. From many of the views the river has the appearance of a large lake, containing here and there little islets, features which add greatly to the beauty and charm of the scenery. In one deep Grassy dell, not far from the house, stands the Chinese Cottage, embowered in Virginian Creeper, and Irish Ivy. In autumn the Virginian Creeper has a most brilliant and charming effect, the bright rich crimson of the one contrasting finely with the dark green of the other.

At another point not far from the raquet court, is a large hardy Fernery and wild garden. Here besides Ferns, are great quantities of bulbs, wild flowers, and such other things as have been found to thrive, all having quite their own way. Its surface is so varied that although it may not be possible to get lost, yet a stranger might have some difficulty in finding the nearest way out of it. In connection with this, are a series of caves cut out of the natural chalk and branching in different directions, one of which forms a subterranean passage of great length, intensely dark of course, but perfectly safe and easy to walk through. This cavern leads suddenly to one of the most lovely spots on the place—"The Happy Valley," a glade sloping down to the river's brink. On the top by the cavern's mouth, is a series of ruins in imitation of a Roman Amphitheatre. Descending the valley, the flanks of which are clothed with Beech, Larch, and Cedars, to near the bottom, the pathway runs under a rugged arch, built of immense unhewn stones and conglomerate, the transport and erection of which must have cost a large sum. It presents that aspect which age alone can give. Passing under the archway, the picturesque boathouse and its surroundings are soon reached, forming altogether from the river a view which few oarsmen fail to stop and admire.

A short distance from the boathouse stands all that remains of the first Lombardy Poplar planted in this country. It was brought here by Lord Rochford, and planted by General Conway. It has withstood for many years the shock of wind and flood, yet, although but a mere shell, one side of it remains, which still shows considerable vitality. In another part of the grounds is the Druid's Temple, consisting of many gigantic stones arranged in cells, the whole having a circular outline. This interesting relic was discovered at St. Heliers,

in Jersey, and presented to General Conway, its then governor, who removed it with great care, and re-arranged it in its original form. From this temple is seen probably the most extensive view on the whole place, through which runs a long reach of the Thames and its valley.

On the lawn near the house stands what is called "the King's Cedar," a tree planted by George III, and said to be one of the most stately Cedars of Lebanon in the country—some, no doubt, exceed it in girth, its circumference being 19½ ft., but for symmetrical growth it is perfect, its branches reaching to the ground. Many other fine Cedars adorn various parts of the grounds, some in groups, and others in the form of isolated specimens.

FLORISTS' FLOWERS AT HILLINGDON PLACE NEAR UXBRIDGE.

IN such a garden as that of Mr. Little, whose name has so long been intimately associated with various classes of what are termed florists' flowers, one may at any season find something of interest. Even in dull December, there was the other day no dearth of flower, for though the Cyclamens, which are Mr. Little's speciality, were not at their best, and the collections of Primulas, Cinerarias, and others were in but an incipient stage of flowering, the well-known collection of Chrysanthemums was still a source of attraction, though many of the finest sorts were somewhat past their best. The houses in which the collections are grown are light and roomy structures, and that which shelters the Cyclamens is a lean-to, 140 ft. long by 10 ft. wide, light, yet strongly roofed with iron. The house is sufficiently heated by a stack of 4-in. pipes, and the plants are placed on benches as near as is convenient to, the glass. Until recently Mr. Little had placed the pots on a trellis, but he found that so much heated air, which was required during the late frosts, circulating so near the plants was very prejudicial to them; he has therefore now placed sheets of zinc on the trellis with a thin layer of coal ashes for the pots to stand on.

The advance which Mr. Little has made with regard to the improvement of the Cyclamen is now well known, and of which his superb "strain" affords ample evidence. It is with respect to the development of richness and variety of colour, together with improving the form and substance of the flowers, to which Mr. Little has turned his attention more particularly; but the exquisite silvery-marbled foliage that has been obtained in his plants is by no means an unimportant feature. In some varieties, the leaves, which are very handsome, resemble in a striking degree the fine variegation of some of the tropical Aroids, such as the small-growing kinds of Peperomia, Pothos, &c. It is a singular fact, however, that the most distinct variegation is restricted to the lighter-flowered varieties; but no doubt Mr. Little will succeed in infusing this character into some of his deep-coloured kinds, which will materially enhance their beauty. Speaking of the colours, I noticed an intensely deep purple-flowered sort—in fact, one might term it a black purple. It is the deepest hue that Mr. Little has succeeded in obtaining, and, as a natural consequence, he values it highly. It is the result of a cross between Ruby, a splendid deep carmine-tinted kind, unfortunately now lost, and Royal Purple, the deepest-hued sort previous to its being supplanted by the novelty under notice. It also possesses form and size of flower, with breadth and substance of petal, which has been aimed at in the hybridising manipulations in this establishment. All the shades of colour-tint yet obtained may be seen here, from the densest hues to the delicate shades of Delicatum and White Perfection, with every possible intermediate tint that can be reproduced by art. Though the collection here of these charming flowers is large and increasing, and contains some excellent specimens, yet it is small compared with the unusually large one which Mr. Little possessed at his former residence, at Twickenham, the fine specimens comprising which were well known at the metropolitan exhibitions, where invariably they occupied a premier position. Some of these plants used to bear as many as 350 blooms, and afforded a fine sight during the many weeks they were in perfection.

The Chinese Primula is another of Mr. Little's favourites, and of this he possesses an excellent collection of well-grown and strong plants, which, in a few weeks, will be a sight worth seeing, for it is evident, by the colours of one or two of the pips that are expanded, that he has a fine strain. One plant in particular is deserving of especial notice, as, in richness of colour, its flowers surpass any I have yet met with. An approximate idea of its beauty may be formed by the flower being described as having a deep orange-yellow eye, encircled by a ring of deep velvety crimson, and with a beautifully fringed outer edge of the richest carmine.

The Cinerarias are fine examples of skilful culture, not merely made-up specimens, but *bonâ fide* single plants, grown from seed sown last January, and now forming well balanced plants in 12-in. pots. Of these there is a dwarf strain, said to grow only a few inches high, which, if true, will be an acquisition for decorative purposes, especially if it is good in other points. In this house also is a collection of Pelargoniums, a class of plants which here receive much attention, and which are great favourites with Mr. Wiggins, the head gardener; the certificates that have been awarded to various kinds is in itself sufficient proof that the work carried on here with regard to raising new varieties is not in vain. Both the zonal and the show classes, as well as the fancy and decorative ones, are grown here for the purpose of improvement.

Amongst indoor bulbous plants, perhaps there are none that are more satisfactory to grow in a general way than the showy kinds of Amaryllis, of which there are now so many magnificent varieties. Mr. Little's collection of these is unusually large, comprising several hundreds of plants, and these are now being rested in a Vinery, though many are already sending up flower spikes, and several are even in bloom; and this perennial habit of flowering is a characteristic which renders them highly decorative subjects. The system of resting the plants here is somewhat different from the course usually pursued, for, instead of allowing the plants to shift for themselves in some out-of-the-way corner, they are placed tidily on stages near the light, and so arranged that each individual plant may be watered or its requirements seen to when necessary. As a sort of mid-season hobby, between the summer flowering collections and the Cyclamens, the Chrysanthemum is taken in hand in extensive numbers, comprising not only all the leading varieties of more recent introduction, but the best of the older varieties which long ago were discarded by the general grower and the seeker after novelty as unworthy of attention. Many of these Mr. Little rightly considers still unsurpassed in their way. Of course, in mid-December, many of the finest blooms of the best varieties were on the wane; still the later ones made a good show, and will continue to do so for some time. All the sections are well and numerous represented; amongst the finest of the blooms of the incurved kinds I noted Lord Derby and its near ally Prince of Wales, the White and Golden Beverley, Mrs. G. Rundle, White Venus, Queen of England and its yellow form, White and Golden Empress of India, and many other kinds. Of the Japanese sorts were James Salter, Mons. Crousse, To Kio, The Cossack, Gloire de Toulouse, La Nymphé, La Frisure, Cry Kang, Bronze and Red Dragon, &c.

The Pompones are a favourite class here, and certainly they well deserve a place when well grown, and no doubt will increase in public favour. The later varieties were in perfection, and there were still several to expand.

Apart from the collections of florists' flowers, the outdoor arrangements at Hillingdon Place are well designed and very pleasant, owing to the extensive shady walks which are led through well-kept shrubberies; there are also various kinds of Conifers, which thrive here as well as I have yet met with them in the neighbourhood of London. Amongst them are fine examples of *Picea Nordmanniana* and *Pinus*, *Abies Albertiana*, the *Deodar*, the *Atlantic* and *Lebanon Cedars*, *Abies Douglasi*, *Hemlock Spruce*, various *Pines*, and others.

W. G.

***Thalictrum adiantifolium*.**—How glad I should be if I could persuade *T. minus* to run in my garden as described in THE GARDEN (p. 555). The leaves are so lovely at the right stage of growth that I consider no place in my garden too good for it; but it does not spread there, nor have I noticed any tendency to spread in any of the places in which I have found it wild. This distinction, however, between *T. minus* and *T. adiantifolium* is very interesting to me, because I have been buying *T. adiantifolium* wherever I have found it in a catalogue, to try whether I can make out any marked line of distinction between the two varieties. One of the most remarkable instances I know of difference of habit in varieties of the same species in their tendency to run occurs in the *Pulmonarias*, of which I cultivate what I have generally believed to be four distinct species, differently named by different authorities. The two most distinct of these, both in habit, and leaf, and flower, are those generally known as *P. officinalis* and *P. angustifolia*, the latter being truly wild in Hampshire and Dorsetshire, whence I obtained it. I find, however, that Mr. Benthams, in his "British Flora," considers the two as identical, saying that every intermediate form may be found in the south of Europe. I do not dispute the validity of this text, but I cannot understand how the same authority can treat *Orchis latifolia* and *O. maculata* as distinct, as I have found every intermediate form between these growing in the same field, and once sent a bunch of them to a good botanist, asking him to sort them for me, which he confessed he was unable to do.—C. W. Dob.

THE GARDEN FLORA.

PLATE CCXII.—THE CRIMSON-RAYED LILY.

(*LILIUM AURATUM CRUENTUM*).

THIS magnificent Lily, which has been named by Mr. Bull *L. auratum cruentum*, has flowered well this season in his collection at Chelsea. The history of Mr. Bull's specimen is this: An importer of goods from Japan bought twenty bulbs of this Lily at two guineas each—a high price, which shows the estimation in which it is held in its own country, where *L. auratum* costs only a few pence. Only two of the twenty bulbs grew; and these were bought by Mr. Bull. I had the pleasure of seeing the plants in flower when on their way to him, and can vouch for the fact that the annexed plate does not at all exaggerate their beauty. When many bulbs of *L. auratum* are planted different varieties of flower appear, some with a brownish band, named *L. auratum pictum*, others with a nearer approach to the crimson band. I have had this experience myself, and have often heard of the crimson-banded Lily from growers, but once see the true *L. rubro-vittatum* in its glory and all the poor attempts at it are nowhere. There is as much difference between them as between a poor specimen of *L. speciosum roseum* and the true old *L. speciosum rubrum*. The Japanese, well known as skilful hybridisers, have probably been able to throw into *L. auratum* some of the brilliant crimson of the true *L. speciosum rubrum*.

Perhaps a few words on the outdoor cultivation of *L. auratum* in general may be acceptable. I will therefore describe a situation in this garden, where, in the past unfavourable season, *L. auratum* bloomed, not merely well, but with as fine flowers as I have ever seen; and, as the bulbs happened to be some early, some medium, and some late bloomers, we had a long succession of flowers coming out in weather of all sorts. The stems were from 6 ft. to 7 ft. in height, and, not being staked, some of them tumbled about with the weight of their flowers, lying upon the *Rhododendrons*. The bed was made about two years ago, and has been left undisturbed since. It is situated at the south side on the curve of a long lawn bed of *Rhododendrons*; but, as across the walk there is a high hedge of trees and shrubs, it is entirely protected from sun and wind. The soil is 4 ft. deep, and was made of two parts good peat, one part road-scrappings (here our road stone is flint), and one part sharp sand. On the north side of the bed *L. Kramerii* and *L. speciosum* bloomed well. *L. auratum* may be grown so as to give very late flowers.

G. F. WILSON.

Heatherbank, Weybridge Heath.

Plant Protection.—Next to snow, dry leaves are the most valuable plant protectors we have, and if a small mound of these is packed around the collar or stems, if any, and kept there by means of a few evergreen branches, the heads will be able to take care of themselves. In the case of *Euonymuses* and other shrubs of that kind of doubtful hardness, it is a good plan to hang some bracken over their heads, and to keep it in position by sticking a few stout pieces of common Laurel so as to overhang it, which will help to take off its unsightly appearance. Pampas Grass will need similar attention. In 1860 the winter was much like the present in the severe manner in which it set in, and thousands of Pampas were then killed which might have been saved had they only received timely protection. Gorse, where it can be obtained, forms a capital shelter for Tea Roses, as it may be laid about amongst the beds, after they have received a good dressing of manure, in such a way as to render all safe. Plants in borders should have a shovelful of leaf-mould laid around the crowns, which is far better in every respect than cinder ashes, so much in favour now-a-days with many cultivators.—S. D.



LILIUM AURATUM CRUENTUM

GARDENING FOR THE WEEK.

Orchids.

Phalænopsis, &c.—Although plants of *Phalænopsis* undoubtedly do best where they are kept cooler for a considerable length of time through the winter than many growers keep them, still if hung up near the roof in the way in which I have from time to time recommended, during such a winter as we are now having, care must be taken that on severe nights they are not too cold; for it is well to bear in mind that a thermometer placed low down in the house often indicates a temperature half-a-dozen degrees or more higher than one nearer the glass. Still, rather than increase the temperature by more fire-heat to meet the requirements of plants like the above when hung up close to the glass, it will be better to lower them for a time. With the same view such plants as *Saccolabiums*, and all but a few of the less heat-requiring *Vandas*, *Galeandras*, *Angræcums*, and the warmer section of *Aerides*, should, unless where there are the means of keeping them and any others of a similar character in a separate structure, be placed at the warmest end of the house, which will be much better than keeping up a temperature to suit the needs of these alone, which at the same time will have the effect of placing the other occupants under more heat than they require. The necessity for this course will be obvious where Orchids are treated in the way that has been found most conducive to their welfare, by as low a temperature as they will reasonably bear. During severe nights, such as we have lately had, there are two things to be especially guarded against, viz., the over-drying of the atmosphere, where there are no evaporating appliances, resulting from the necessity of making the pipes hotter than usual; and the opposite of too much atmospheric moisture where evaporating troughs on the pipes exist, and care is not taken to see that too many of these do not contain water, particularly where they are cast on the pipes, as with the increased heat requisite to be kept up during hard weather the vapour which they throw off becomes proportionately great. I have frequently seen in the case of inexperienced growers mistakes made by extremes in this way which have done serious mischief, as independent of the harm that generally results through drip from the roof, an atmosphere over charged with moisture, and at the same time warm, invariably tends to excite growth sooner than is desirable.

Calanthes.—The different forms of *Calanthe vestita*, and the other bulb-forming varieties raised from them, will, in most cases, now have done flowering. I have always found these plants to require different treatment after blooming from other Orchids, inasmuch as they suffer if submitted to a correspondingly lower temperature whilst at rest, for it is during this time that the buds at the base of each bulb that are to form the next year's growth are gradually developing, and if kept so cool as not to admit of this process, slowly but continuously going on from the time they have done flowering until subjected to an increase of heat to start them into growth, they always break weakly, and the succeeding year's growth never attains the strength it otherwise would. And I believe one of the reasons why these plants are often seen in a comparatively small, indifferent condition is, that they are thus kept too cool in the winter. The temperature of the warmest house where they have flowered will answer better for them than moving them to cooler quarters. If there is any scale upon them, their being now completely devoid of leaves permits of their receiving a thorough cleaning, which should be done by sponging, not with a hard brush, as the thin cuticle of the bulbs of these plants is easily injured, and when this occurs it frequently causes them to rot. When well managed, these *Calanthes* increase much faster than most Orchids. Their extremely free-flowering disposition, the length of time they remain in bloom, and the adaptability of the flowers, either individually or in whole spikes, for using in the various arrangements of cut flowers, constitute them second to no winter-blooming stove plants; so much so, that I should recommend all who have a warm stove, even where no other Orchids are cultivated, to grow these, for so easily are they managed, that, with a moderate amount of attention, they will do well in an ordinary plant stove.

Dendrobiums.—Very much more may be done in keeping up a continual succession of Orchid flowers all through even the duller times of the year than with almost any other family of plants; and although it is an effective and beautiful sight to see a large number of species with their most opposite forms and colours in bloom at one time, such may be seen in April, May, and June, where large collections are grown; still with the majority of people this will not compensate for a deficiency through the dull months of the year, when flowers, especially those which last long, like many Orchids, are most valued. Some of the best kinds for winter work are to be found amongst the *Dendrobes*, which, where a sufficient number of species are grown, will in themselves almost encircle the year with their flowers. There are none better for coming on early

in the New Year than the Chinese species, *D. moniliforme*, which, even when kept quite cool after its growth is completed, will now be pushing its flower-buds. If several examples are grown, and a portion of them are now put at the warmest end of the intermediate house or coolest place in the stove, in a few weeks they will open their flowers which, for endurance, either on the plants or when cut, are remarkable. If the plants have been kept quite dry they should be moistened at the roots when put into more warmth. This, though an old subject, has become somewhat scarce, and where it is not grown, and there is stock enough of the nearly allied *D. nobile*, part of which were treated so as to make their growth early, and have had a good rest, some may now be put in heat and brought on into flower; but beginners with this plant need to be very careful in not giving it any water, either at the root or overhead, until the bloom-buds are not only prominent but the flowers visible, as, if suddenly excited by moisture in addition to warmth, many of the buds will go off into growth. The beautiful *D. Wardianum*, with its elegant drooping habit, the flowers equally handsome in a cut state as on the plant, and correspondingly enduring, may also, with enough plants, be had in bloom for almost half the year. Where this species is grown in quantity, some of this earliest matured may be put in heat and brought on into flower.

Cattleya Trianae.—Plants of this class, coming into bloom as they do over a lengthened period sooner or later, according to the time when their growth was completed, and the conditions as to warmth under which they have been placed whilst at rest, may now in some cases be pushing up their flowers. Where these are found to be making progress inside the scape a little water may be given, for they, like other plants, when showing signs of the bloom developing, are better not too long retarded, allowing them to come on slowly. This plant, more than most, is much influenced as regards the duration of its flowers when open, by the treatment it receives whilst they are in course of development, and if hurried during this stage the blooming is much sooner over.

Oncidium.—The different species of these that bloom in the early portion of the year, and that form their flower-spikes very slowly, after these begin to elongate are better not kept quite so dry at the roots. I have frequently seen those plants, the growth of the flower-spikes of which is very slow, kept in such a dry, parched state whilst in this stage, that they could not possibly be expected to bloom as they ought to do. Yet beginners in Orchid cultivation must by no means suppose that it will do to keep plants that are in the condition described so wet as during the growing season. But there is very much difference between having the roots too wet, and keeping them in the opposite extreme—so dry that the whole plant is shrivelled at the time its energies are taxed in preparation for flowering. Be careful not to allow heat-requiring kinds like the different forms of *O. Lanceanum* to be in too low a temperature for the next two months, or the plants may be lost altogether. The same holds good as regards the West Indian species, *O. luridum* guttatum and its varieties, which will not bear to be kept as cool in the winter as the generality of intermediate house plants with which they are often associated when growing. Some of the best forms of the last-named kind, although they lack the novelty of more recent introductions, and are not so bright in colour as some, yet from the stately character of their bloom-spikes and the persistent nature of their flowers, are better worth growing than many which find more favour.

Lycaste Skinneri.—Where a sufficient number of this useful free-flowering plant is grown it, too, may be had in bloom over a long period during a great portion of the winter and through spring; but to have it in flower in this way over a considerable time, it is necessary to treat the plants somewhat differently as to the warmth given them in the winter. It is essentially an intermediate temperature Orchid, and will take no harm during the winter in a night temperature of 46° or 48°; but to have it in bloom early it is necessary to keep it a few degrees higher than this, and whether the plants are treated so as to get them on in this way somewhat earlier, or kept at the cooler point mentioned, I have never found them to succeed well if the roots are kept so dry as those of some things. Its free growth and profuse disposition to flower with the great difference in the colour of the bloom produced by individual plants, make it one of the most desirable of Orchids to be grown in quantity, even by those who do not cultivate large collections. Strong examples now showing a number of flowers coming up from the base of last year's bulbs, may, if kept as already pointed out somewhat warmer, with the soil in a half-moistened condition, be had in bloom to succeed the earliest now in flower.

Sophrontis.—This beautiful small-growing Orchid, so conspicuous for the colour of its large and brilliant flowers, should be kept tolerably dry after blooming, but not so as to cause it to shrivel too much. The coolest end of the intermediate house will be warm enough for it for a time until the season for its commencing

growth has come, as like most other plants that make growth under the influence of a comparatively cool temperature, it is liable to start too early if submitted to over-much heat during the winter, and I never found it either to make such good growth or flower so well unless it has a considerable rest and does not begin to grow too soon.

—T. BAINES.

Flower Garden.

Cold Frames.—The cultivation of hardy plants in frames is an interesting occupation for lovers of choice herbaceous plants, but it is a great mistake to suppose that such are easily grown, and require no attention. I had a look through a small pit containing such plants to-day, and can see two days' work or more in merely stirring the surface soil in the pots, picking out weeds, and removing withered leaves from the plants. It is, however, interesting work, as one can observe, now that the soil in the pots has thawed, what the state of the occupants is, for during several days the soil was frozen through and through. Here we have a few dozens of pots of *Tritonias* and *Ixias*, upon which the frost has had no effect whatever, even although many of them had grown considerably, some of the *Ixias* being quite 3 in. and 4 in. out of the soil. Except the species of *Primula* mentioned last week as having suffered, all the others are sound; and I must say that the points of the leaves of *P. capitata* are injured. There are a few, such as *P. Parryi*, *P. Munroi*, and *P. rosea*, the leaves of which are dead down to the crowns; but, of course, that would happen if there was no frost; the crowns seem quite firm and sound. There are the different varieties of *P. cortusoides* which may be frost-bound all the winter and not suffer in the least. The same may be said of *P. japonica*, the leaves of which are now quite green. Then there is the singular but very handsome *Meconopsis nepalensis*, the outer large leaves of which have been killed, but the smaller ones have formed a tuft of surpassing beauty, and the leaves, which are now very short and rigid, seemed formed to defy any amount of frost. Here is a hardy plant which may be grown and admired for its foliage alone, but it also yields in summer a spike of very beautiful flowers. I cannot say that the rather tender growths of the show and fancy varieties of *Pansy* have not suffered, the growths seem to droop and some of them have quite "fogged" off. The pots are plunged in dry material, and it is certain that where the long stems are killed, new growths will be thrown up from the base. Any work that can be done during severe frost that will forward operations in the spring or summer, when one does not know what to turn to first, should now be attended to. The exhibitor of florist flowers will have plenty to do in preparing his stands and boxes in which the stands or trays are conveyed to the exhibition; they may be painted and varnished, stowing them away when dry where they can be kept free from dust. Labels may be made and painted. Some persons like to write on dry paint, but wet paint is best, and the labels may be painted a second time before they are used. Sticks may also be prepared of various lengths and thicknesses; paint them green, and then dry them and tie them up in bundles ready for use. Pegs for layering *Carnations* and *Picotees* may also be cut out of any branches that may be most convenient. Beech and Hornbeam are amongst the best for this purpose. Failing these, wire, about the diameter of that used for ladies hair-pins, answers well. Galvanised pegs are made and sold for this purpose.

—J. DOUGLAS.

Hardy Fruit.

In this, the last calendar of the year, it is but natural that notice should be made of those fruits that have in spite of bad weather been up to the usual average, both as regards quantity and quality, and though as a matter of course the remarks about to be made only apply locally, yet they may serve generally as some slight guide to the inexperienced who may be contemplating fruit tree planting. At least the trees named in the list will possess the merit of hardiness, seeing that we have had frost in every month of the year except July. No kind is mentioned except those which have given a fair average crop, and which are of passable quality. They are as follows:—*Apricots*—*Musch Musch* and *Moorpark*. *Apples*, dessert—*Devonshire Quarrenden*, *King of the Pippins*, *Court of Wick*, *Cellini*, *Margil*, *Ribston Pippin*, *Court Pendu Plat*, *Cockle Pippin*, and *Lemon Pippin*. *Kitchen Apples*—*Lord Suffield*, *Hawthornden*, *Golden Noble*, *Blenheim*, *Lord Derby*, *Yorkshire Greening*, *Wadhurst Pippin*, *Kentish Fill Basket*, *Wellington*, *Warner's King*, *London Pippin*, *Winter Colman*, and *Hambledon Deux Ans*. *Cherries*—*Morellos* only, dessert kinds were quite a failure. *Currants*—*Red*, *White*, and *Black* were all good. *Gooseberries*—*Red Warrington*, *Companion*, *Rough Red*, *Rumbullion*, *White Champagne*, and *Whitesmith*. *Nectarines*—*Pitmaston Orange* and *Downton*. *Peaches*—*Early Louise*, *Early Grosse Mignonne*, *Royal George*, *Bellegarde*, *Noblesse*, and *Barrington*. *Pears*—*Williams' Bon Chrétien*, *Beurré d'Amanlis*, *Flemish Beauty*, *Brown Beurré*, *St. Michel Archange*, *British Queen*, *Beurré Superfin*, *Beurré Hardy*, *Fondante d'Automne*, *Autumn Bergamot*, *Beurré de Capiaumont*, *Comte de*

Lamy, *Seckle*, *Swan's Egg*, *Beurré Diel*, *Durandean*, and *Pitmaston Duchess*. *Plums*, dessert—*Jefferson* and *Kirk's*; *kitchen*—*Early Orleans*, *Victoria*, *Pond's Seedling*, and *Autumn Compôte*. *Raspberries* were a heavy crop; being moisture-loving plants the incessant rains were in every way beneficial to them. *Strawberries*—*Vicomtesse Hericart de Thury* and *President*; these bore enormous crops. It may be observed that *Peaches*, *Nectarines*, and *Apricots* were well protected from the spring frosts with scrim canvas, and that some of the *Pears* were afforded Birch spray as shelter whilst they were in flower. The long-continued frost will cause work to fall so much in arrear, that unless forethought be exercised it will be difficult to keep pace with it as soon as the frost disappears. Therefore to avoid such a pressure let all manure and soil wheeling be finished, stakes cut and pointed, labels made, and trees that require it relabelled, nails can be cleaned, shreds cut, bunches of matting for tying, and small twigs for laying in the new shoots of wall trees—these, together with other jobs that will suggest themselves, may all now be done by way of forwarding operations when the busy time arrives. When the air is dry and free from frost open the fruit room ventilators for an hour each day. I find that the fruit this winter soon gets mouldy, which, I suppose, is attributable to the excessive rainfall, for the damp this season permeates everywhere and everything. All decayed fruit should be removed forthwith, and it may be worth while to wipe over the finer *Pears* with a dry cloth, in order to ensure their better preservation. *Easter Beurré* and *Ne Plus Meuris*, two kinds of *Pears* on which we depend for supplies in January and February, are this year so specky and subject to mould that without thus drying they would fail to keep at all. *Winter Nelis*, *Passe Colmar*, *Fondante*, *Van Mons*, *Bishop's Thumb*, and *Urbaniste* are usually amongst our best dessert *Pears*, but having this season failed to ripen they are being used as stewing *Pears*, and though not equal to the best culinary varieties, such as *Catillac*, *Calebasse*, *Beurré Bretonneau*, and *Beurré Rance*, they are much approved of for that purpose. So that those who have *Pears* of any kind which fail to ripen for dessert may find them valuable to eke out a scanty supply of culinary kinds. —W. W.

TREES, SHRUBS, AND WOODLANDS.

JAPANESE MAPLES.

WITHIN the past twelve or fifteen years numerous additions* have been made to the already large list of the genus *Acer* by the discovery of several new species in Japan and Amoor. Most of the garden varieties which have been introduced into this country and Europe are derived from *A. palmatum* of Thunberg. He gives as species *A. septemlobum* and *A. dissectum*, but these are only varieties of this species. Dr. Siebold called it *A. polymorphum* on account of its great tendency to vary in its foliage. It will thus be seen that these names which are given in nursery catalogues as distinct species, are only synonyms of *A. palmatum*. Strange to say, although the species was introduced into England as far back as 1820, none of the varieties were introduced until within the past few years. There is also a variety of *A. platanoides*, variously known in the European nurseries as *A. palmatum*, *A. crispum*, and *A. laciniatum*, which has the lobes of the leaves deeply jagged, with acuminate bristle-like teeth on the edges; this should not be confounded with the Japanese species. Dr. Savatier, speaking of the latter, says: "The form of the leaves varies much. Sometimes they are palmate with five to seven narrow lobes (*A. palmatum*, Thunb.) or divided into from seven to nine much larger lobes (*A. septemlobum*, Thunb.), or even more multiparted palmate, with narrow lacinations (*A. dissectum*, Thunb.). These three principal varieties subdivide themselves into many others, which the industry of Japanese gardeners has multiplied *ad infinitum*."

Thunberg gives the following description of this species: "Leaves palmate, serrate, smooth, flowers umbellate; tree medium-sized, entirely smooth; branches and branchlets opposite, round, turning purple, spreading leaves on the extremities of the branchlets, stalked, incisely palmate; 5-7 nerved, smooth on both sides; lobes 5-7 (Siebold says 3-9), lanceolate, acute, equally sharply serrate; nerves sometimes hairy."

Another class of the garden varieties is derived from *A. trifidum*. Their foliage is not so finely dissected and so Fern-like in appearance as that of the previous species. Dr. Savatier says, in speaking of it,

* Dr. Savatier and M. Franchet, in their catalogue of Japanese plants, enumerate twenty species, viz., *A. japonicum*, *A. Sieboldianum*, *A. pictum*, *A. truncatum*, *A. trifidum*, *A. diabolicum*, *A. circumlobatum*, *A. Burgerianum*, *A. palmatum*, *A. capillipes*, *A. spicatum*, *A. tartaricum*, *A. micranthum*, *A. rufinerve*, *A. craspedifolium*, *A. carpinifolium*, *A. distylum*, *A. argutum*, *A. pycnanthum*, *A. sessifolium*, *A. cissifolium*, and *A. mikense*. To these Dr. Maximowicz has added *A. tomentosum*, *A. monomaxim*, and *A. barbinerve*. Many of those enumerated by Dr. Savatier were discovered by Dr. Maximowicz.

Japanese Maple (*Acer palmatum dissectum atropurpureum*)

"The leaves of this species are very variable; are sometimes almost entire, sometimes more or less deeply trilobed; some have broad lobes, others have narrow ones, some are smooth on the edges, others are dentated," Thunberg describes it thus: "Leaves undivided, entire, trifid; branches round, smooth, purplish; leaves at the ends of the branchlets, few, undivided, bilobed, or trilobed, entire, on both sides smooth, above grass-green, below paler, ovate, acute; lobes ovate, acute, wide." Some of the varieties of this species have blotched leaves. It is very distinct from the previous species and produces correspondingly distinct varieties. It has larger, different shaped leaves and a stronger and different habit of growth.

A. japonicum is a very beautiful species, the leaves of which are large, almost circular in shape, and notched on the edge into eleven or thirteen sharp lobes. Multipartedly incised, opposite, serrate, on both sides downy, petioles short; the nerves at first hairy; branches and branchlets round, purple and smooth; umbels many flowered; flowers sub-umbellate, purple; seeds winged and woolly.

A. pictum has the leaves smooth, palmately seven-lobed; lobes acuminate, oblong, entire, alternate, aggregated together at the ends of the branches, smooth on both sides, variegated with white; branches smooth, ash-coloured.

A. carpinifolium is a rare species, the foliage of which is so unlike that of a Maple and so closely resembles that of the Hornbeam that none but the most experienced botanists would recognise it as a Maple, except they saw the flowers and the fruit. I am not aware of there being any varieties of it.

I do not think that *A. cratægifolium* has been introduced into this country, but a very beautiful variety with deeply incised leaves has been. It is of upright growth with brownish-red bark and is quite different in appearance from those derived from *A. palmatum*.

These are all that have been introduced into this country, as far as I know. The other species named would no doubt be desirable additions to our lists of ornamental trees. Many of them are closely allied to our American species, and can hardly be distinguished from them; for instance the Japanese *A. spicatum* differs from the American species of the same name, but not sufficiently so to warrant making it a distinct species. *A. circumbolatum*, *A. argutum*, and *A. barbinerve*, are allied to *A. glabrum*. *A. capillipes*, *A. rufinerve*, and *A. tegmentosum* are related to *A. pennsylvanicum*.

Much difficulty has been experienced in propagating the various varieties of Japanese Maples. As a rule they are of delicate growth and require to be grafted on some good stock to ensure a reasonable

strength of growth. They will take on some of the American species and will make a good growth for a year or two, when suddenly, sometimes within twenty-four hours, the whole plant will die. This could be overcome only by importing plants of the type to be used as stocks. The type can be propagated by cuttings, but as some of the trees originally imported are now beginning to produce seeds, stocks will be more readily obtained. The Japanese increase them all by grafting, but principally by inarching. As the varieties generally produce long, slender branches, they place a row of stocks—six, eight, or more—close to the mother plant, and 3 in. or 4 in. apart; they then inarch a branch at as many different points as there are stocks to graft it on, an eye or bud being left at each inarching. They propagate in this way in order to obtain as many grafts as possible, and not to dwarf the plants as is generally supposed. They also have a fashion of training up a stock with a clean stem 5 ft. or 6 ft. high, and then inarching a number of varieties—sometimes a dozen—upon it, on different sides, producing a very novel and beautiful effect. I trust that what I have just written will, in some measure, clear up the confusion which exists amongst horticulturists in regard to these Maples. Unfortunately nearly all the information that can be obtained about them can only be had in the works, difficult to be obtained, of Maximowicz, Savatier, Miguel, Siebold, and Bunge of the past few years, and of Thunberg and Tratinick of seventy or eighty years ago. No American or English botanist yet has made Japanese Maples a special study.—JAMES HOGG, in *Rural New Yorker*.

THE FLOWER GARDEN.

HARDY V. TENDER PLANTS.

WHEN I penned my few remarks on this subject (p. 504), I said nothing I thought that could hurt the susceptibilities of any thoughtful person, but might have offended the prejudices of some, and this it appears I have done. A writer who might have replied in THE GARDEN, where my remarks appeared, but who has chosen to go elsewhere, devotes nearly a leading column ostensibly to Orchids, but really to my observations, and not being able to contest the question on its own merits, he expresses his dissent in personalities, weak ejaculations, and unsuitable rhyme. I am not therefore called upon to defend any particular assertion which I have made. If any one can demonstrate that the Orchids, &c., named by me are superior to the common flowers mentioned, in colour, form, singularity of blossom, or in any other way, let them do so. In my former remarks I only desired to direct attention to what cannot be regarded as anything else than a weakness on the part of cultivators generally, but, of course, exhibited in some individuals more than in others—what may, indeed, be called a kind of infirmity—an absence of discriminative perception—something akin to colour-blindness, for which the individual so afflicted is, I freely admit, not always responsible. There can be no doubt of the fact, however, that we are too apt to value the subjects which we cultivate by their cost and difficulty of culture, and gardeners lay themselves open to ridicule in this respect, and if there was such a thing as a horticultural *Punch* they would probably find it so. Employers are not so bad as their gardeners. A lady once said to me, "You know I cannot get up the enthusiasm for some of these things (pointing to some popular Orchids) that gardeners profess. They are no doubt pretty, and all that, but inferior to many of our common flowers that are quite neglected." And there is no use in disguising the fact that this is a very commonly entertained opinion amongst people of true tastes, and who are not bigoted admirers of this or that class of plants. Your contemporary compares the value of such subjects as the Calanthes with Snapdragons, Pentstemons, and Phloxes, as winter flowering subjects, which have nothing whatever to do with the question. The parallel is between plants for which extravagant admiration is professed, and those which have been well-nigh banished from our gardens because they were common, but which in real worth and beauty were every way superior. Where, for example, do we find any Orchids that surpass some of our hardy Lilies in grandeur, or our numerous Delphiniums in richness of colour or gorgeousness? Yet, when gardeners were wheeling these to the rubbish heap, a few years back, they were loud in their praises of Calanthes, indifferent Oncidiums, dingy Zygopetalums, and poor Epidendrums, &c., which could not be compared with them! I do not under-value good Orchids and other stove plants, but I cannot help often thinking of our inconsistencies in that way, hence my remarks.

In conclusion I would just state that the writer in your contemporary, in a style of exaggeration which is far too common and misleading, and quite inexcusable in one who should know better, states that the *Calanthe Veitchi* produces "gorgeous spikes of beautiful flowers in their varied shades of colour, from pale rose to crim-

son." This I wholly deny. The writer in question never in his life I am sure ever saw a crimson *Calanthe Veitchi*, and probably never will, nor anything approaching crimson—two, or maybe three shades of pink or rose, he may have seen, but hardly more, and the difference in these would be very slight. His description of the plant exceeds that given by any competent authority on Orchids, and is untrustworthy and quite inaccurate.

Since the above was written I see that Mr. Douglas has returned to the subject, hardy v. tender plants, in THE GARDEN, but nothing that he has there stated calls for any alteration in my remarks. One observation of his, however, requires comment. He says, "I must place a low estimate upon the tastes of the horticultural public" by my remarks. My reply to this is that there is not much faith to be put in the public taste in gardening any more than in other matters. What a commentary, for example, on the public taste was the banishment from our gardens of hardy flowers almost universally a few years back! After that I think vagaries such as I have alluded to need surprise no one. J. S. W.

— In a letter in another paper, I was interested to find Mr. Douglas philosophically deprecating any comparison between different classes of flowers—tender or hardy; presently, however, I was astonished to find him speaking of the "rubbish," and quoting poetry about some fair maiden who surpassed her fellows as much as *Calanthe veratrifolia* surpassed "nearly all the occupants of the herbaceous borders." Well, this is modest. The plant is very pretty, but, as a matter-of-fact (if it were needed in THE GARDEN above all other papers), I could give you a very long list of plants that surpass in beauty the one that Mr. Douglas mentions. Has he ever seen a tuft of the hardy Moccasin-flower (*Cypripedium spectabile*), nearly a yard high, grown on a north border in deep vegetable soil? Has he seen the magnificent Lilies that have embellished our gardens of late years, including *L. auratum*, 10 ft. high or more—columns of such splendid flowers as I have never seen on any exotic plants? Will he mention one so remarkable indoors? I quite agree with your correspondent that a good white Clove Pink is as good as a Gardenia; for me it is a good deal better. I do not desire to say anything against hothouse plants, but I should like to hear of anything in a hothouse so fine as a good double Stock in scent and colour too. Is there anything indoors among blue flowers that comes anything near the tall Delphiniums, grown, as I have seen them during the past year, to a height of 10 ft., and beautiful beyond all description as regards colour and form too? To the unprejudiced observer the beauty of a good collection of Irises growing on a favourable soil is more remarkable than that of any house of Orchids which I have yet seen. One of the fine varieties of the Cardinal-flower, with its splendid spike of scarlet, is unequalled in its way among tender flowers, as far as I know. The advantage of the indoor flowers being protected by the glass is a very great one, and I am afraid if they were exposed to all weathers like the Stocks and Clove Pinks, some of them would cut a very sorry figure. I have no wish to draw comparisons between different classes of plants, but I cannot allow anybody without protest to deprecate herbaceous plants who only appears to know those to which *Calanthe veratrifolia* is superior. I fear he must have looked at a very weedy, mixed border indeed. I much prefer to the *Calanthe*, which I also greatly admire, my group of the large Evening Primrose that scents my garden in the evening, and is so showy and beautiful throughout the night. I have also read somewhere in THE GARDEN that the Emperor of Austria has groups of this flower planted very near his country house, so that such a plant appears to be equally attractive to those who may have as many *Calanthes* as they desire. J. H.

RARE HARDY PLANTS.

Two plants have come under my notice since the past summer that have interested me much, and I seek for further and more practical information about each of them. The first is *Hugueninia tanaetifolia*, so named by Reichenbach after M. Huguenin, a celebrated French botanist at Chambéry; the other is *Nycterinia Lychnidea*, a native of the Cape of Good Hope. The *Hugueninia* I noticed in some of the Italian valleys this autumn, south of the Hospice of St. Bernard, especially in one valley that leads down from the Mont Blanc range to Courmayeur and Aosta. It is a Crucifer, and it prefers valleys through which glacier streams appear to run. It grows in stony places among boulders that are Moss-grown. Its gay, bright-yellow colour, brighter than *Alyssum saxatile*, attracted my attention. It was growing overshadowed by Alders and glacier Willows, and the bright gold peeped out cheerily from the foliage. On examining the leaves of the plant, I remarked at once their resemblance in form to those of *Achillea macrophylla*, though they are more slender and graceful. It is a tall growing plant, of vigorous habit. I know nothing of its silicle but from books. I am wishful to learn if this has yet been in cultivation in England, and if so, with what result.

Now a few words on the other plant I wish to know more about from those who have treated it. I mean the *Nycteria Lychnidea*. It was once grouped with *Erinus*, but is wisely severed from that genus. As I said, it is a Cape plant. It was sent to me to name from a garden near Morecambe Bay. On first glance, without close structural examination, I felt inclined to group it with the *Lychnidea* or some allied group. Closer notice proved the fallacy of such grouping. Could it be a *Scrophulariad*? Happily a line from Mr. Baker, of Kew, who is always so ready to hold out a helping hand, settled the difficulty for me. This I know is in cultivation, but I know nothing about it.

P. I.

THE WHITE-HOOPED PETTICOAT DAFFODIL.

(*NARCISSUS (MONOPHYLLUS) CLUSII*.)

On December the 1st, when our thermometers registered 15° of frost, Mr. W. E. Gumbleton brought me from his garden at Belgrove, Queenstown, a very finely developed flower of this rare and beautiful little Daffodil, which, apart from its general interest, is remarkable as being perhaps the first one of the kind which has blossomed in Ireland. The late Mr. Giles Munby, of Alice Holt, Farnham, to whom we were indebted for the re-introduction of this little gem to our gardens, was ultimately tolerably successful as regards its cultivation after numerous failures and the trouble and expense of



The White-hooped Petticoat Daffodil.

importing batch after batch of its tiny brown bulbs from Algeria where it grows wild. The Rev. A. Rawson once showed me a specimen of it bearing fine flowers, and in Mr. Barr's nursery ground, at Tooting, a little bed protected by a frame produced twenty or thirty milk-white, golden-anthered cups all well-thrown up to the spring sunshine; but even with the knowledge and experience of its likes and dislikes gained by cultivators during the last five or six years, the plant is still rare in even good gardens, and the flowering of it is as yet always worth recording wheresoever it occurs. The behaviour of Mr. Gumbleton's plants, as he informs me, has been sufficiently singular. The bulbs were received in a vigorous growing state in the autumn of 1877. No growth at all was made during 1878, the bulbs lying dormant all the season, but in 1879 they grew freely enough and have just flowered. Mr. Gumbleton's flower as here sketched is the nearest approach to that figured in the "Botanical Magazine" which I have yet seen, and was far finer than native specimens which I obtained some years ago direct from Algeria by post through Mr. Munby. A lovely little plant like this is worthy of careful cultivation, since its flowers are ample reward, being unique in snowy-whiteness and delicate formation. F.W.B.

National Auricula Society's Schedule.—I noticed some remarks (p. 553) last week in reference to prizes being given for species of *Primula*, and I am pleased that it is thought to be a step in the

right direction. I hope there will be a good competition in this class as it is a most interesting one. I may also observe that prizes are likewise offered for fancy *Auriculas*, fancy *Polyanthuses*, and varieties of the common *Primrose*. This has been done in order that not a single member of the genus *Primula* may be left out. I see exception taken to the word "florist" as applied to these flowers. The term is certainly vague, as is also the term "fancy" as applied to the ordinary border varieties of *Polyanthus*, but such terms are used first in a haphazard way, then they gradually get into use, and it is difficult to get rid of them, even if better terms are suggested.—J. DOUGLAS.

THE KITCHEN GARDEN.

WINTER SPINACH.

At present, when choice vegetables are not over-plentiful, few things grown in the open air or in the kitchen garden are so much appreciated as Spinach. In places where four or five different kinds of vegetables have to be supplied daily, cultivators are often puzzled how to manage this, especially during severe weather or after frost, and to such Spinach must always be most welcome, as it may be gathered every day in the year, and it may also be used in a variety of ways in the kitchen. At the present time we have oftener a demand for Spinach than for anything else, and although we are annually increasing its cultivation, we see clearly that we shall require to increase it much more, on account of its being so useful in winter. Those who may not have been in the habit of eating Spinach, soon get to like it after having it served a time or two well cooked, and I must say that those who do not grow winter Spinach, or think they do not like it because they have never tasted it in proper condition, should try a patch of it next winter, when I am sure they will find it valuable in many ways.

We begin sowing our winter Spinach about the beginning of August, and sow now and then until the end of September. When winter sets in early, that sown early is the most useful; but during mild winters the latest sown patch often comes well in, and is most useful, especially, towards spring. Spinach will grow after any kind of crop, in stiff or free soil, and in rich or poor land. Too rich soil is not good for it in winter, as it causes the leaves to grow too large and tender, those of ordinary growth being the hardiest. We generally sow ours after Potatoes, and find it to answer well. The prickly kind, being the hardiest, is the only sort used for winter. The seed is sown in drills 18 in. apart and 1½ in. deep; the plants are not thinned until they are large enough for use, when all those drawn out are sent to the kitchen. Late-sown patches will just be about ready to draw now, and about this time Spinach should not be left too long in masses, as it is liable to rot.

In order to have ready access to it in all weathers, part of it should be covered over with frames and lights, or mats when frost or snow occurs; and Fern or straw may be spread over that which cannot be covered with frames. In mild weather it needs no protection.

CAMBERIAN.

Tom Thumb Savoy.—At the autumn show of the Ealing Horticultural Society, held the other day, Mr. Hudson, of Gunnersbury House, exhibited samples of the Tom Thumb Savoy that showed it to be a very desirable winter vegetable. Of all winter Cabbages, the Savoy is the hardiest, and therefore the safest to grow; but it acquires a strong taste as winter proceeds. The Tom Thumb kind not only does not exhibit this, but has also that smooth, delicate taste peculiar to the Brussels Sprout, and, being small, may be served up whole. It is especially a Cabbage for every-body's table, and, like the Rosette Colewort, should be planted thickly.—A. D.

Forcing Rhubarb.—The general scarcity of fruit this season will render forced Rhubarb doubly valuable during the earliest months of the year. Any one having good clumps may, by lifting them now with a large ball of earth attached to them, and planting them in any position where a little heat is available, even under stages where nothing else will grow, will have plenty of crisp, succulent stalks fit for tarts early in January and onwards. The largest market kinds are by no means the best for forcing. Moderate-sized stalks are the ones for quantity and quality.—J. Groom, Linton.

Market Vegetables.—The best of all the winter green family for frosty weather is the Drumhead Savoy Cabbage. It is hardy, and maintains its firmness in frost better than others of the Cabbage tribe. When so hard frozen it is not possible to trim them neatly, and, of course, the heads are much more susceptible to breakage and injury; nevertheless when put into cold water for an hour or so before cooking, the frosted leaves are very tender and delicious eating.—D.

THE RIVIERA.

I AM pleased, as all must be, with Canon Hole's letters from Nice. They take me back so often to the sunny Riviera that I have known now for so many years, that I would fain add a few of my own experiences to those of your observant correspondent. I have made Nice, Cannes, Mentone, San Remo, Hières my winter homes for so long that I shall be excused if I seek to supplement, in some measure, and substantiate the remarks and observations of Canon Hole. I will begin with Nice itself. I was there in January, 1875. The flower market often attracted me. Here I saw fine sprays of *Buddlea madagascariensis* exposed for sale for a few pence, the creamy orange blossoms and leaves harmonising so happily together. This and *Cassia tomentosa*, if I mistake not, were great attractions to me; while among herbaceous plants were bunches of *Anemone stellata* in lovely flower. I would recommend Canon Hole to visit this market, if, indeed, he has not done so already. On the outskirts of the town, in the direction of the old Roman fort of Turbia—a grand walk—stands a giant tree of *Acacia lophantha*, with a girth the thickness of one's body; it was loaded with flowers and pods. That same walk gave me *Crocus versicolor* thus early, readily identified by Mr. Moggridge. I must not omit a somewhat local flower, *Moricandia arvensis*, which is essentially a Ligurian, occurring near to Ventimiglia as well as Nice. It is a Crucifer, and I may add very local in its distribution. Canon Hole would be interested, I doubt not, in seeing the fly that is so very detrimental in the grub state to the Olive crop; it is the *Tephritis Kairon*. M. Bruyat has bred it from the grub, and will be pleased to show it to any one interested in seeing this destructive fly. Again, M. Barla's collection of fungus-models at the museum at Nice is well worth a visit. They are life-like in moulding and in colouring, especially the *Agaric* group. I would draw especial attention to the models of *Coprinus picaceus* and *Ammanita cæsaræa*. I think I can beat the Canon in his story of the spink. I once saw exposed for sale in a poulterer's in the Riviera, I think at San Remo, two dozen Jenny-wrens! These were part of the products of a chasseur's game-bag. I believe they were afterwards bought by an Englishman, who was a fly-fisher, for the sake of the feathers—at least I was told so. I shall be glad on some future occasion to supplement my account with notes from San Remo, Cannes, and other favoured spots of the beautiful Riviera.

Hovingham Lodge, York.

PETER INCHBALD.

Ivy on Buildings.—It is stated (p. 567) that Ivy keeps the walls of buildings dry, and that if they happen to be damp before, the damp will disappear after the wall is covered with the Ivy, which, it is also said, will suck out the moisture from the wall into its own substance, a statement in which there is a certain amount of both truth and error. Ivy will keep out damp from walls that were dry before, but it will not make walls that are already damp, dry, unless the damp is driven through from the outer surface of the wall only. The dampness of walls is not, however, often caused in this way; but rises from the foundations—sometimes as high as the second story, and when this happens the evil is very difficult to cure.

Much depends on the nature of the stone used and the situation, but all good architects now provide against damp rising by pitching the foundations at the ground line. The old parish church here is perhaps as perfect an example of an Ivy-clad structure as could be found, and the Ivy is kept in excellent order by careful trimming annually, yet the walls inside are so damp as to completely disfigure their surface, for which reason they have to be painted frequently. In this case the damp rises from the foundations. The Ivy has covered the walls for a very long period, and the latter appear to be drier outside than in, perhaps owing to the freer evaporation. I have seen many other instances of a similar kind. I do not know how Mr. Shirley Hibberd reconciles his opinion, that the Ivy sucks the moisture from the wall by its stem roots, as they are wrongly called, with the dictum of physiologists that the Ivy absorbs no moisture by these, not being a true parasite. If the plant derives any sensible nourishment in that way, how comes it that it dies so soon after the stem is severed at the bottom, the common way of killing Ivy on trees?—J. S. W.

Rose Stocks.—A mistake has occurred (p. 469) in reference to this subject. It is there printed—"and if their roots are strong enough to struggle with those of the other shrubs." I wrote, or meant to say, that if I recommend standard Roses to be planted amongst other shrubs, it is because the roots of the Dog Rose can struggle for life with those of other shrubs, the *Rosa canina* being one of our hardiest of plants.—JEAN SISLEY, Lyons.

Late Black Hamburgh Grapes.—All I have to say in reply to Mr. Cowburn, who seems (p.) determined to prove that late Black Hamburghs are an impossibility, is that October-ripened Vines can be and are frequently kept from starting till May, and the fruit can be kept in good condition till January or February, for I have accomplished both, and seen the same done elsewhere. The Oak and the Ash never come into leaf here till about the middle of May, and are sometimes as late as the beginning of June, as they have been the last two years, and they are equally late in many other parts, and it would be strange indeed if Black Hamburgh Vines exposed to the cold, and with their roots outside, could not be retarded till the same period, seeing that they require a higher temperature than either the Oak or the Ash to bring them into leaf. I shall keep Mr. Cowburn's invitation in remembrance, and if he can show me ten Peaches, each within a fraction of half a pound, to the square foot I shall be the first to record the same.—J. S. W.

MESSRS. LETTS, SON & Co., of King William Street, City, have again issued their well-known diaries, and with them, Saxby's Weather Almanack, which was very successful in predicting the weather during the past year. The large amount of information which the author furnishes in this little work—which can be easily carried in the pocket—is based, not upon speculation, but upon scientific knowledge and painstaking observation, both night and day, of the many changes in the lunar system. He believes that not only has the moon an influence on our weather, but that it is likely to prove to be the main source of all atmospheric disturbances.

The Late Frost.—The thermometer fell to zero at Straffan Gardens, Co. Kildare, on the 17th inst.—F. BEDFORD.



